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CONTRIBUTIONS

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No. 19 The Genus *Eremophila* (Myoporaceae) in Queensland with notes on the Genus *Myoporum*

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PREFACE

LINDSAY STUART SMITH (1918–1970)

NOTES ON HIS STUDY OF MYOPORACEAE

The paper presented herewith is based on a typescript left by the late L. S. Smith, Senior Botanist, who died suddenly in September 1970, at the age of 52 years.

The typescript was originally prepared during 1946–1947 under the title "Queensland Myoporaceae. Part 1: The Genus Eremophila". It was written in the form of a thesis for which Mr. Smith was awarded First Class Honours in Botany by the University of Queensland in 1948.

Mr. Smith had extended his studies of Myoporaceae to other regions and to *Myoporum,* but he became so deeply involved in other botanical work, mainly on the taxonomy of rain forest trees in North Queensland, that he was able to devote very little time to Myoporaceae. During the 20 years before his death he made a few additions and alterations to the typescript but was unable to keep his original distribution maps up to date.

Despite repeated requests by his colleagues, Mr. Smith refused to publish the paper, arguing that his treatment of some of the taxa was incomplete and that the paper was not really fit for publication. Even so, the keys and descriptions have been in constant use in the Queensland Herbarium for more than 20 years and have proved to be an excellent workable account of the genus *Eremophila* and some other Myoporaceae in Eastern Australia.

I am one of those who believed that the usefulness of the account far outweighed its imperfections and who considered that the work should be published to provide stepping stones for other botanists working on this family.

In fairness to Lindsay Smith, it should be noted that he regarded many of his conclusions as tentative and that he was not satisfied with his treatment of some groups (such as the *Eremophila bowmanii* and *E. latrobei* complexes).

Shortly after Mr. Smith's untimely death, I asked Mr. Henderson, who had co-operated with Smith on cytological studies of *Eremophila* during his later years, to scrutinize the typescript carefully and reduce it to a form suitable for publication in "Contributions from the Queensland Herbarium".

This task has now been completed and the paper here presented is similar in form and identical in essential content to that prepared by Smith. Mr. Henderson has been careful to avoid imposing his own opinions on those expressed by Smith and the taxonomic conclusions are those of Smith himself. As explained in his introduction, Mr. Henderson has altered the form of the key (but preserved the essential text), has brought the nomenclature into accordance with the 1972 Edition of the International Code, has added English translations of new species described elsewhere in Latin only (Smith 1956) and prepared a summary and an index to scientific names.

It is interesting to note that Barlow (1971) who worked on the cytology of *Eremophila* in Australia made the following comment: "The genus is in serious need of critical taxonomic revision". At that time he was not aware of the content of Smith's paper although he knew of Smith's interest in the genus.

The long delay in publishing Smith's work on Myoporaceae is a sad example of the futility of delaying publication of taxonomic studies that are sound and accurate but not quite complete. Taxonomic work is wasted if the results are locked away in unpublished manuscripts. In situations such as these, I consider that once work has reached a stage where the greater part has been done and only a few difficult groups remain to be elucidated, it should be published rather than be laid aside for years in the hope that some day a few of the known minor imperfections can be overcome or problems solved. Publication paves the way for further work, failure to publish does nothing to advance the science of botany and often has the effect of discouraging other people from working on the same groups of plants.

As mentioned elsewhere (Everist 1971), Smith was a perfectionist. His reluctance to commit himself to print until every "t" was crossed and every "i" was dotted robbed Australian botany of many fine contributions.

This is one contribution that will not be lost and I feel sure that it will prove useful in the elucidation of the taxonomy of these important plants. Mr. Henderson is to be congratulated on the completion of a difficult and tedious task.

S. L. EVERIST
Director, Queensland Herbarium.

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INTRODUCTION

In preparing Smith's manuscript for publication some material has been rearranged and much omitted. Additional data from the references of his bibliography have been added to conform with recent taxonomic papers from the Queensland Herbarium. I believe that the scope of the work and the intent of the author have not been greatly affected.

Smith based his nomenclature on the 1935 International Rules of Botanical Nomenclature. Some minor changes have been made to conform with the 1972 Code (Reg. Veg. 82), which is that referred to where ICBN is cited in the text. The key to species has been altered from an indented to a numbered couplet type, and a summary, an index to names (p. 48) and translations of Smith's Latin descriptions of *Eremophila cordatisepala, E. obovata* var. *obovata* and *E. obovata* var. *glabriuscula* have been provided. Only selected specimens from the original manuscript are cited to give an indication of the range of each species in Queensland. The distribution maps that were included in Smith's original manuscript have been omitted. Most of them are now inadequate as data from the numerous specimens at BRI and other herbaria determined by Smith after 1950 were not used by him in preparing them. Data from herbarium labels, except those of type collections, have been changed to their approximate metric equivalents. Symbols for herbaria are those listed in Index Herbariorum, Reg. Veg. 31 (1964).

R. J. F. HENDERSON

December, 1974.

Contributions from the Queensland Herbarium No. 19

THE GENUS *EREMOPHILA* (MYOPORACEAE) IN QUEENSLAND WITH NOTES ON THE GENUS *MYOPORUM*

by L. S. SMITH*

(Manuscript edited by R. J. F. HENDERSON, Queensland Herbarium, Brisbane)

SUMMARY

Twenty-one formally described species of *Eremophila* occur in Queensland. Each of these is described fully and distinguished from the others by a key to Sections and Species. *E. latrobei* var. *glabra* var. nov., *E. latrobei* forma *flava* forma nov. and *E. bowmanii* var. *latifolia* var. nov. are described. The new combinations *Eremophila* Section *Amphichilus* (DC.) L. S. Smith and *E. maculata* forma *flava* (F. M. Bail.) L. S. Smith are made. *Myoporum tenuifolium* Forst. f. is chosen lectotype species of the genus *Myoporum*.†

INTRODUCTION

The only account of the family Myoporaceae dealing solely with species which occur in Queensland is that given by F. M. Bailey in the Queensland Flora Vol. 4 (1901). Bailey merely abstracted appropriate portions of Bentham's Flora Australiensis Vol. 5 (1870), and added some new locality records as well as notes on the timber or other properties of a few of the species. Since then a number of new species has been described from Queensland and a few additional ones recorded by F. M. Bailey (1910), C. T. White (1926, 1936, 1944), and J. M. Black (1926). Further, several specimens from Queensland localities have remained undetermined in the Queensland Herbarium and extensive collections accumulated there have extended the range of many of the species previously known from only one or two localities.

Bailey recognized three genera in Australia belonging to the family. More recently J. M. Black (1929) restricted the number of genera to two, whereas Kraenzlin (1929) increased it to four. Such diversity of opinion calls for an attempt to determine the correct status of the different genera. The present paper endeavours to accomplish this.

The present work is based on material in the Queensland Herbarium, Brisbane. Where possible, type specimens or material from type localities have been examined. I am indebted to the Directors of the following institutions or owners of collections for making available on loan specimens from the National Herbaria at Sydney and Melbourne, and the Herbaria of J. M. Black and J. B. Cleland [now at the State Herbarium] in Adelaide. Where cited, these specimens are indicated respectively by the symbols NSW, MEL and AD. Where there is no such indication the specimens are in the Queensland Herbarium (BRI). The National Herbarium at Melbourne has been visited and the collections of Myoporaceae examined, though particular attention was devoted to those species which occurred in the north-eastern portion of Australia. In addition, two-thirds of the species dealt with have been examined in the field.

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* Died 12 September 1970.

† A. Bullock [Kew Bull. 14 (1960) 44] nominated *M. laetum* Forst. f. as lectotype species of *Myoporum*—R.J.F.H.

Members of the family Myoporaceae may be segregated into two primary natural groups based on floral structure. The flowers of the first group, with a few exceptions amongst non-Australian species, are small and occur in clusters in the leaf axils and open more or less simultaneously. The corolla is typically white and almost actinomorphic except for the very slightly broader or larger abaxial lobe. This group is here classified as belonging to *Myoporum* Soland. ex Forst. f.

The second group differs from the first in possessing much more clearly zygomorphic flowers which are typically large and showy and occur singly in the leaf axils. Where more than one flower bud does occur in a leaf axil, the flowers open in succession. In this second group the flowers typically are coloured being red, pink, mauve, lilac, lavender, blue, purple, green, yellow or cream though sometimes white. This group is discussed under *Eremophila* R. Br.

Spotting within the throat or on lobes of the corolla is common to a number of species belonging to both of the above groups.

MYOPORUM Soland. ex Forst. f.

Since the appearance of Bentham and Hooker's Genera Plantarum (1876) all subsequent authors have followed them and assigned the plants belonging to the first group mentioned above to the genus *Myoporum*. Since, when founding the genus *Myoporum*, Forster (1786) distinctly cited Solander as the author, the correct formal citation of the name is therefore *Myoporum* Soland. ex Forst. f.

The genus as founded is based on four of Forster's species, namely *M. laetum* (New Zealand), *M. pubescens* (New Zealand), *M. crassifolium* (Botany Is.) and *M. tenuifolium* (New Caledonia). Type localities are given in brackets. Since the genus attains its maximum development in Australia and *M. tenuifolium* is the only one of these four species which has been recorded from Australia, it is hereby chosen as type species of the genus.

In early literature, species of *Myoporum* have been placed under the genera *Pogonia* Andr. non Juss., *Andreusia* Vent., *Bertolonia* Spin., *Pentacoelium* Sieb. & Zucc., *Polycoelium* DC., *Disoon* DC., *Capraria* L. and *Citharexylum* L. All of these generic names, with the exception of the last two which are included on account of mis-identification of specimens by Gray and Forster respectively, have now been reduced to synonyms of *Myoporum.*

All of the species included by de Candolle (1847) under the three genera *Disoon, Polycoelium* and *Myoporum,* are now regarded as belonging to the genus *Myoporum.*

Bentham (1870) was the first to subdivide the genus into named sections. He arranged the Australian species under three sections, viz. *Eumyoporum* Benth., *Disoon* (DC.) Benth. and *Chamaepogonia* Benth. Bentham and Hooker (1876) added sections *Pentacoelium* (Sieb. & Zucc.) A. Gray and *Polycoelium* (DC.) A. Gray to include those species with an extra-Australian distribution. Wettstein (1895) adopted the sections used by Bentham and Hooker. Kraenzlin (1929) appears to have entirely disregarded earlier arrangements and proposed five new sections, viz. *Insularia* (essentially extra-Australian), *Acuminata, Serrata, Parvifolia* and *Diversifolia.* As the epithets suggest, the sections are based largely on foliar characters. As one might expect, such treatment proves rather artificial and the consequent grouping of the species does not always bring out true affinities. Bentham and Hooker's sections were based on more essential characters of the ovary and fruit. Further, Kraenzlin was not justified in omitting consideration of earlier sectional names.

Australian authors have either followed Bentham's arrangement within the genus or ignored sections altogether.

EREMOPHILA R. Br.

While the limits of the genus *Myoporum* have now been generally agreed upon, there has been and still is some disagreement concerning the number of genera represented by the second group characterized above.

When founding the order Myoporinae, Brown (1810) established three genera for members of this group. These were *Pholidia, Stenochilus* and *Eremophila.* The first genus is based on *Pholidia scoparia* R. Br. The second is based on two species of which de Candolle (1847) chose *Stenochilus glaber* R. Br. as the type species by placing it in his section *Euchilus.* The second species, *S. longifolius* R. Br., de Candolle placed in his section *Amphichilus.* The derivation of these sectional names clearly indicates de Candolle's opinion that *S. glaber* agreed best with Brown's diagnosis of the genus *Stenochilus.* There is no doubt he was correct. Actually *S. longifolius,* of which Brown did not see the corolla is as to the arrangement of the corolla lobes intermediate between *Eremophila* and *Stenochilus. Eremophila* is also based on two species, namely *E. oppositifolia* R. Br. and *E. alternifolia* R. Br. The type specimen of each lacks corollas. *E. alternifolia* has the corolla of *Stenochilus* although it differs from Brown's diagnosis of that genus in having a scarious calyx, and the stamens not exserted. Brown (1848) later suggested this species "might be separated from

Eremophila", although he did not consider it "referable to *Stenochilus"*. By these remarks it is clear that Brown considered *E. oppositifolia* as the species by which the genus *Eremophila* should be interpreted.

Endlicher (1939) maintained Brown's three genera.

De Candolle (1847), in addition to recognizing Brown's genera, added *Pseudopholidia* DC. and *Eremodendron* DC., each based on a single species. *Pseudopholidia brevifolia* (Bartl.) DC. was transferred to the genus *Pholidia* R. Br. by Bentham (1870). *Eremodendron cunninghamii* DC., on the other hand, is at most only a variety of *Eremophila oppositifolia* R. Br., the type species of the genus *Eremophila.*

Brown (1849) suggested the arrangement of the then known species of *Eremophila* in four sections, for which, however, he published no names.

Mueller in 1852 and 1856 respectively published *Pholidiopsis* and *Duttonia** based on *P. santalina* F. Muell. and *D. gibbifolia* F. Muell. respectively. In 1863 he erected the genus *Sentis* and named the species he included in it *S. rhynchocarpa.* However, since he cited *Pholidia divaricata* F. Muell. as a synonym, this is an illegitimate name.

Mueller (1856) established two sections of *Pholidia.* Section *Sentis* was based on *P. divaricata* F. Muell. while section *Eremicola* was based on *P. polyclada* F. Muell.

Brown's three genera, de Candolle's two, and his own two earlier ones (i.e. *Pholidiopsis* and *Duttonia*), were united by Mueller (1858) under the name *Eremophila* R. Br. At the same time he divided this enlarged genus into the following seven sections: *Stenochilus* (R. Br.) F. Muell. based on Brown's genus of the same name; *Scariosepala* F. Muell. based on two species, *E. latifolia* F. Muell. (now regarded as *E. serrulata* (A. Cunn.) Druce) and *E. alternifolia* R. Br., of which the latter is chosen as lectotype species; *Eremocosmos* F. Muell. which had been founded earlier (1852) based on *E. oppositifolia,* which because it was considered by Brown as typical of *Eremophila,* is hereby selected as the lectotype species; *Platychilus* (Benth.) F. Muell. based on *Stenochilus* R. Br. sect. *Platychilus* Benth. (1848), the type species of which is *E. bignoniiflora* (Benth.) F. Muell.; *Duttonia* F. Muell. based on Mueller's earlier genus *Duttonia; Pholidia* (R. Br.) F. Muell. based on Brown's genus of the same name; and *Sentis* (F. Muell.) F. Muell. based on *Pholidia* sect. *Sentis* F. Muell.

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* Mueller validly published the name *Duttonia* for two different genera of plants. *Duttonia* (1856) is illegitimate being antedated by *Duttonia* (1852) which however, is now regarded as a synonym of *Helipterum* DC. (Compositae). Any subsequent names in Myoporaceae based on *Duttonia* F. Muell (1856) are to be treated as new names. ICBN Art. 72—R.J.F.H.

However, in the following year (1859), Mueller published a completely different arrangement of the species under five sections. Actually this paper gave an opinion of the author earlier than the one discussed immediately above, even though published later. The five sections used here were: *Sentis* (F. Muell.) F. Muell. which had previously been published; *Eremodendron* (DC.) F. Muell. based on de Candolle's genus of the same name; *Xerophila* F. Muell. based on a very heterogeneous group of eight species characterized by the enlargement of the calyx and of which *E. oppositifolia* is chosen as type species, since the majority of the species were earlier included under his section *Eremocosmos; Pholidia* (R. Br.) F. Muell. which had previously been published, as also had *Stenochilus* (R. Br.) F. Muell.

Bentham (1848), as has been mentioned, described *Stenochilus* R. Br. sect. *Platychilus.* Later (1870), he included Mueller's genera *Sentis, Duttonia* and *Pholidiopsis,* as well as *Pseudopholidia* DC. under Browns genus *Pholidia. Eremophila* R. Br. was extended to include *Stenochilus* R. Br. *Pholidia* was not subdivided, but the species of *Eremophila* were arranged in five groups bearing the following sectional names; *Eriocalyx* Benth. presumably based on *E. eriocalyx* F. Muell., *Eremocosmos* F. Muell., *Platychilus* (Benth.) F. Muell. and *Platycalyx* Benth. based on *E. macdonnellii* F. Muell.

Bentham and Hooker (1876) adopted the same two genera and subdivisions of *Eremophila* as Bentham (1870) had proposed earlier.

Baillon (1888) agreed with Mueller that all of the Australian *Myoporaceae* except *Myoporum* should be united under a single genus, but took exception to Mueller's choice of the generic name *Eremophila* on the grounds of a paging priority. He considered the name *Pholidia* (published on page 517 of Brown's Prodromus) should replace *Eremophila* (published on page 518). Ewart (1908) sharply rebuked him for "frivolous interference with established nomenclature". Wettstein (1895) agreed with Baillon and published eighteen new combinations under *Pholidia* which he attributed to Baillon. Art. 57 of the ICBN states in part that "The author who first unites taxa bearing names or epithets of the same date, has the right to choose one of them, and his choice must be followed." As Mueller has undoubted priority in selecting *Eremophila,* he must be followed by subsequent authors who unite Brown's genera. Kraenzlin (1929) points out that *Eremophila* was the most incompletely described of any of Brown's three genera. His remark concerning Mueller's choice of the name, i.e. ". . . das wird wohl stets ein Ratsel bleiben", is scarcely correct when Mueller (1859) clearly stated ". . . preference has been given to the expressive name *Eremophila*; not only because it is so well adapted for all these plants, all without exception being restricted to the desert tracts of Australia, but also as it claims equal priority with those of *Stenochilus* and *Pholidia* in regard to priority, whilst neither of the latter names applies to the generality of the species." Wherever possible Mueller seems to have chosen an appropriate name for his genera and species, even going so far, when he found it was frequently stellate-pubescent, as renaming *E. glabra* R. Br. This latter change, however, is not sanctioned by the present code of nomenclature.

Kuntze (1891) made an even more drastic reduction in the number of genera of Myoporaceae. He was unable to differentiate satisfactorily between the West Indies genus *Bontia* L. and *Eremophila* R. Br. and therefore made 58 new combinations under *Bontia* L. (which he spelt *Bondtia*), the earlier name.

Kraenzlin (1929), in the only recent revision of the family as a whole, has restored Brown's three genera, *Pholidia, Eremophila* and *Stenochilus*. *Pholidia* was divided into four sections bearing new names, namely *Lancifoliae, Brevifoliae, Scopariae* and *Aciculariae*. Kraenzlin should not have used any of these new names, as each of his sections contain the type species of an earlier validly published sectional name (ICBN Art. 51). These sections, therefore, should have borne the names *Platychilus, Sentis, Pholidia* and *Duttonia* respectively.

Kraenzlin divided *Eremophila* R. Br. into the sections *Eriocalyx* Benth., *Eremocosmos* F. Muell., and *Platychilus* (Benth.) F. Muell. Section *Platychilus,* as designated by Kraenzlin, did not include the type species *E. bignoniiflora,* so it should have been given a new name. *Stenochilus* R. Br. was not subdivided.

The majority of Australian authors have followed Mueller in adopting the two genera *Myoporum* Soland. ex Forst. f. and *Eremophila* R. Br. to embrace all of the Australian Myoporaceae, though Bailey (1890, 1901, 1913) followed Bentham (1870) in recognizing the three genera *Myoporum* Soland. ex Forst. f., *Pholidia* R. Br. and *Eremophila* R. Br. Mueller's subdivision [with minor nomenclatural modifications according to ICBN] has been accepted in this paper.

Nomenclatural types and the rules of priority appear to have been given little consideration by some previous authors in so far as sectional names are concerned. For example, Black (1929) employed the combination *Eremophilia* sect. *Eremocosmos* F. Muell., dating from 1852, despite the fact that *E. longifolia* (R. Br.) F. Muell., the type species of *Stenochilus* R. Br. sect. *Amphichilus* DC. (1847), was included in the group. He had a section *Stenochilus* (R. Br.) F. Muell. (1858) also, even though all of the species names, some as synonyms, included under *Stenochilus* sect. *Euchilus* DC. (1847) were placed under it.

In the present treatment, *Eremophila* has been divided into the six sections *Eremophila* (*Eremocosmos* F. Muell.), *Eriocalyx* Benth., *Amphichilus* (DC.) L. S. Smith, *Stenochilus* (R. Br.) F. Muell., *Pholidia* (R. Br.) F. Muell. and *Platycalyx* Benth.

The interrelationship of the sections appears to be of an intricate and complex nature. Section *Pholidia,* with the least zygomorphic corolla, is the nearest approach to the genus *Myoporum*. This section is connected with section *Platycalyx* through the less incised calyx, although the corolla of the latter section has become much more zygomorphic and shows a greater similarity to that of some species of section *Amphichilus*. The corolla of section *Eremophila* shows but slight variation from that of section *Pholidia*, although the calyx is considerably different. The calyx of *E. longifolia* (R. Br.) F. Muell., or rather of the glaucous forms of this species, shows greatest similarity of any of the Queensland species to that of *Myoporum* and at the same time suggests a connection between section *Pholidia* and section *Amphichilus*. *E. latrobei* F. Muell. through the scarious texture of the calyx, provides a link between section *Eriocalyx* and section *Eremophila*. This same species together with *E. macgillivrayi* J. M. Black, by the type of lobing of the corolla, suggest a relationship between section *Eriocalyx* and section *Stenochilus*. The very narrowly imbricate calyx in some forms of *E. gilesii* F. Muell. suggests connections between section *Amphichilus* and section *Eremophila*, and perhaps through its shape and texture, connections between section *Amphichilus* and section *Eriocalyx*. The corolla of *E. longifolia* (R. Br.) F. Muell. and *E. tetraptera* C. T. White is intermediate between the usual types in section *Amphichilus* and section *Stenochilus*. Again, the corolla of *E. duttonii* F. Muell. connects section *Stenochilus* and section *Amphichilus*, only the acutely tipped lobes of the upper lip enabling its correct position to be determined. Further, the subplumose or stellate indumentum of the calyx, which characterizes section *Eriocalyx*, is found to a smaller degree in section *Amphichilus*, section *Euchilus* and section *Platycalyx*. By taking into consideration the numerous Western Australian species, many more examples of intermediate forms linking the different sections could be provided.

Consideration of the factors outlined has largely contributed to the view that the complex should be treated as a single genus subdivided into sections which show a reticulate rather than linear relationship. Discontinuities in the series of species are not considered to be of sufficient magnitude to warrant the formation of discrete genera, and, in fact, characterization of even sections is difficult.

DISTRIBUTION OF EREMOPHILA IN AUSTRALIA

Over two-thirds of the named species of *Eremophila* R. Br. occur in Western Australian localities only, or just across the borders of that State. This suggests that the genus belongs to the Autochthonian element of Tate (1896). A number of the remainder, e.g. *E. maculata* (Ker) F. Muell. and *E. longifolia* (R. Br.) F. Muell., are found in all of the Australian States. Comparatively few, e.g. *E. mitchellii* Benth. and *E. bowmanii* F. Muell., have been found only on the eastern portion of the continent. It should be borne in mind, however, that a good deal of inland Australia has not yet been thoroughly explored botanically, and the range of a number of species may ultimately be extended. None of the species is coastal except in parts of South and Western Australia where an arid climate prevails to the coastline. Mueller's choice of the generic name for the group was very appropriate.

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TAXONOMY

Eremophila R. Br. Prod. 518 (1810). Lectotype species: *Eremophila oppositifolia* R. Br.

Pholidia R. Br. Prod. 517 (1810). Type species: *Pholidia scoparia* R. Br.

Stenochilus R. Br. Prod. 517 (1810). Lectotype species: *Stenochilus glaber* R. Br.

Eremodendron DC. in Meisn. Gen. 292 (1840). Type species: *Eremodendron cunninghamii* DC.

Pseudopholidia DC. Prod. 11:704 (1847). Type species: *Pseudopholidia brevifolia* (Bartl.) DC.

Pholidiopsis F. Muell. Linnaea 25:429 (1852). Type species: *Pholidiopsis santalina* F. Muell.

Duttonia F. Muell. Hook. J. Bot. 8:73 (1856) non *Duttonia* F. Muell. (1852), *nom. illeg.* Type species: *Duttonia gibbifolia* F. Muell.

Sentis F. Muell. Fragm. 4:47 (1863). Type species: *Sentis rhynchocarpa* F. Muell., *nom. illeg.*

Woody subshrubs to small trees, *ca* 0·3–10 m high. Leaves alternate or occasionally opposite, entire or toothed, sessile or often with a petiole-like base. Flowers axillary, solitary, or rarely up to four in each leaf-axil then developing in succession, pedicellate, ebracteate, white or more frequently coloured. Calyx divided ± to the base into 5, rarely 4, imbricate or valvate segments, rarely divided to about the middle and 5-lobed; segments equal to very unequal, remaining herbaceous or becoming scarious, not or conspicuously enlarged under the fruit. Corolla tube narrow and cylindrical or broad at the base, sometimes constricted above the ovary, slightly expanded and campanulate or tubular above, frequently oblique or curved; lobes 5, more or less arranged to form two lips, if two lobes form the upper lip and three the lower, then the lobes all subequal, the adaxial pair more or less united or the abaxial one slightly larger, if four lobes comprise the upper lip and one the lower, then the lobes of the upper lip subequal or the central ones shorter and the abaxial lobe much longer than the remainder and becoming recurved or reflexed. Stamens 4, very rarely 5, didymous, one pair *ca* ¾–⅞ as long as the other, included or exserted; filaments filiform or broadened near the base; anther-cells opening by longitudinal slits, at first parallel, at length spreading. Ovary 2-celled, with a bifid placenta standing out from the dissepiment in each; ovules 2–6(–8) in each cell, pendulous, borne on the recurved margins of the placental lobes. Style filiform, curved or more or less hooked at the apex; stigma scarcely broader than the style or capitate, notched or entire at the apex. Fruit an almost dry or succulent, more or less perfectly or imperfectly 4-celled drupe, often at length 2–4-cleft at the apex.

The genus is restricted to Australia, the majority of species occurring in Western Australia.

KEY TO SECTIONS AND SPECIES OF EREMOPHILA IN QUEENSLAND

1. Calyx divided to near the base into 5, rarely 4, segments 2

Calyx campanulate, divided only to about the middle into 5 lobes. Sect. **Platycalyx** Benth. .... One species only, 21. *E. macdonellii* F. Muell.

2. Corolla cut from about $\frac{1}{3}$ to $\frac{1}{2}$ into 5 subequal to very unequal lobes; calyx remaining small or becoming enlarged; indumentum never lepidote; leaves alternate 3

Corolla cut to about $\frac{1}{4}$ or less into 5 subequal lobes; calyx persistently small, narrowly imbricate in bud, usually ± valvate at anthesis; indumentum lepidote; leaves opposite. Sect. **Pholidia** (R. Br.) F. Muell. ....

One species only, 20. *E. dalyana* F. Muell.

3. Corolla cut to about $\frac{1}{3}$ or rarely slightly more when the adaxial lobes are ± obtuse or rounded; corolla lobes so arranged that the upper lip appears 2–lobed and the lower 3–lobed; calyx imbricate or valvate at the base; drupe from almost dry to succulent; stamens included or exserted 6

Corolla cut to about the middle or if less, the adaxial lobes with fine acute tips; corolla lobes so arranged that the upper lip appears 4–lobed and the lower composed of a single much longer spreading or reflexed lobe; calyx imbricate; drupe succulent; stamens exserted; corolla red, orange or yellow. Sect. **Stenochilus** (R. Br.) F. Muell. 4

4. Leaves narrowed at the base into a slender petiole-like portion 1–7 mm long; drupe almost as long as to much longer than the calyx; calyx segments less than 1 cm long, scarcely enlarged in fruit 5

Leaves narrowed to a broad sessile base; drupe shorter than the calyx; adaxial calyx segment exceeding 1 cm in length and 0·8 cm in breadth, conspicuously enlarged in fruit; pedicels mostly longer than the calyx and sigmoidal. 19. *E. duttonii* F. Muell.

5. Indumentum on the branchlets of simple hairs; pedicels sigmoidal, much longer than the calyx; drupe much exceeding the calyx .... 17. *E. maculata* (Ker) F. Muell.

Indumentum on the branchlets of stellate hairs; pedicels curved, shorter than to slightly longer than the calyx; drupe from as long as to shortly exceeding the calyx ....

18. *E. glabra* (R. Br.) Ostenf.

6. Calyx segments in bud valvate or very narrowly imbricate, always valvate at anthesis, rounded or very obtuse at the apex and becoming scarious, or if pointed or acuminate then with a subplumose or stellate indumentum 14

Calyx segments in bud imbricate or if almost valvate at anthesis then ± acute or acuminate at the apex and lacking a dense stellate indumentum all over. Sect. **Amphichilus** (DC.) L. S. Smith 7

7. Corolla pubescent outside; ovary hairy or rarely (*E. longifolia*) glabrous; calyx segments becoming ± scarious or remaining herbaceous 8

Corolla glabrous outside; ovary glabrous; calyx segments except for the membranous lower margins, remaining herbaceous 12

8. Corolla lavender to bluish-purple; stamens included; ovary hairy; drupe almost dry; plant always shrubby 9

Corolla red or brownish; stamens exserted; ovary glabrous; drupe succulent; plant at length a small tree; leaves and branchlets appressedly pubescent .... 13. *E. longifolia* (R. Br.) F. Muell.

9. Pedicels and branchlets clothed with simple, curved hairs 10

Pedicels and sometimes branchlets as well, clothed with erect glandular hairs and longer simple spreading articulate hairs 11

10. Leaves linear to linear-lanceolate, 1·5–3(–4·5) mm wide, denticulate; adaxial calyx segment 2–4 mm wide; drupe longer than or as long as the calyx .... 9. *E. gilesii* F. Muell.

Leaves lanceolate, 3–6(–8) mm wide, entire; adaxial calyx segment 4–8 mm wide; drupe much shorter than the calyx .... 10. *E. freelingii* F. Muell.

11. Leaves linear to linear-lanceolate, 2–5(–6) mm wide, the older ones denticulate, branchlets and leaves devoid of long spreading simple hairs, glandular pubescent or at length glabrous .... 11. *E. goodwinii* F. Muell.

Leaves lanceolate, 5–8(–10 or more) mm wide, entire or obscurely denticulate towards the apex; branchlets and leaves bearing long simple spreading hairs as well as glandular ones .... 12. *E. elderi* F. Muell.

12. Corolla white or cream; stamens included; drupe succulent, not winged 13

Corolla red; stamens at length exserted; drupe almost dry, longitudinally 4-winged .... 16. *E. tetraptera* C. T. White.

13. Leaves few, sparse, linear, up to 4 mm wide and 2–6(–10) cm long, entire; drupe narrow, ellipsoidal or oblong, long pointed; flowers whitish; a divaricately branched shrub .... 14. *E. polyclada* (F. Muell.) F. Muell.

Foliage moderately dense; leaves linear-lanceolate to lanceolate, up to 1·4 cm wide and 18 cm long, entire or obscurely denticulate; drupe at length broadly ovoid, shortly beaked; flowers cream; a tree ...... 15. *E. bignoniiflora* (Benth.) F. Muell.

14. Calyx segments very obtuse or rounded at the apex, becoming scarious and reticulate; indumentum comprising glandular or simple hairs. Sect. **Eremophila** 15

Calyx segments ± acute or acuminate at the apex, remaining herbaceous or rarely becoming scarious and reticulate, densely clothed with subplumose or stellate hairs at least towards the margins. Sect. **Eriocalyx** Benth. 17

15. Leaves and branchlets glabrous or glandular puberulous; stamens included; ovary villous and with shorter glandular hairs interspersed 16

Leaves and branchlets hoary or yellowish with a close tomentum of minute appressed hairs; stamens shortly exserted; ovary densely and appressedly pubescent .... 3. *E. oppositifolia* R. Br. var. *rubra* White & Francis

16. Flowers lilac or pale mauve; corolla pubescent outside; leaves linear or less frequently almost linear-lanceolate, 1–2·5(–3·5) mm wide .... 1. *E. sturtii* R. Br.

Flowers white; corolla glabrous or very sparsely glandular puberulous outside; leaves narrowly lanceolate, 2–4(–7) mm wide .... 2. *E. mitchellii* Benth.

17. Leaves less than 1·5 cm long, obovate, oblong or broadly oblanceolate; pedicels much shorter than the calyx; ovary glabrous; woody sub-shrubs, *ca* 0·3 m high 18

Leaves exceeding 1·5 cm in length; pedicels slightly shorter than to much longer than the calyx; ovary glabrous or hairy; shrubs or small trees exceeding 1 m in height 20

18. Leaves oblong or oblanceolate; flowers violet; drupe about half as long as the calyx; fruiting calyx segments sub-cordate to ovate ...... 5. *E. cordatisepala* L. S. Smith

Leaves obovate; flowers mauve; drupe about as long as the calyx; fruiting calyx segments lanceolate 19

19. Leaves stellate pubescent .... 4. *E. obovata* L. S. Smith var. *obovata*

Leaves glabrous .... 4. *E. obovata* L. S. Smith var. *glabriuscula* L. S. Smith

20. Flowers blue to lavender or rarely white; corolla cut to about ⅓, not or scarcely curved; incisions separating the two lips as deep as or slightly deeper than the remainder, corolla sparsely stellate pubescent outside; ovary glabrous; pedicels mostly much longer than the calyx 21

Flowers red to reddish-purple, rarely yellow; corolla cut from ⅓ to ⅜, curved, abaxial lobe separated by deeper incisions than the remaining lobes 22

21. Leaves linear, margins recurved; indumentum of pedicels and leaves long and loose ...... 8. *E. bowmanii* F. Muell. var. *bowmanii*

Leaves lanceolate to oblong, margins not or only narrowly recurved; indumentum of pedicels and leaves short and dense. 8. *E. bowmanii* F. Muell. var. *latifolia* L. S. Smith

22. Ovary sub-plumose to tomentose; drupe about as long as the calyx; corolla sparsely stellate pubescent outside, pedicels usually slightly longer than the calyx; leaves lanceolate .... 7. *E. macgillivrayi*. J. M. Black

Ovary glabrous; drupe much shorter than the calyx; corolla sparsely glandular puberulous outside; pedicels shorter than the calyx; leaves linear to lanceolate .. 23

23. Calyx segments stellate pubescent over the whole of the outside; leaves closely stellate tomentose, usually remaining so, rarely at length glabrous .... 6. *E. latrobei* F. Muell. var. *latrobei*

Calyx segments stellate pubescent towards the margins only on the outside; young leaves sparsely glandular puberulous, soon glabrous .... 6. *E. latrobei* F. Muell. var. *glabra* L. S. Smith

Note.—In addition, at least one undescribed species of *Eremophila* from Queensland was known to Smith. Though he made no formal description in manuscript he had segregated material of it in BRI. This shrubby species will be described elsewhere but for the present may be distinguished from other species of section *Amphichilus* to which it belongs, by its pale mauve to white flowers with corollas white woolly hairy inside, on ± sigmoid pedicels shorter than the linear, conspicuously viscid leaves up to *ca* 5 cm long.—R.J.F.H.

Section **Eremophila**

Eremophila R. Br. sect. *Eremocosmos* F. Muell. Linnaea 25:428 (1852). Lectotype species: *Eremophila oppositifolia* R. Br.

Eremodendron DC. in Meisn. Gen. 292 (1842). Type species: *Eremodendron cunninghamii* DC.

Eremophila sect. *Eremodendron* (DC.) F. Muell. Proc. Roy. Soc. Tas. 3:293 (1859). Based on *Eremodendron* DC. Type species: *Eremophila cunninghamii* (DC.) Baill. ex Wettst.

Pholidia R. Br. sect. *Eremocosmos* (F. Muell.) Wettst. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3b):359 (1895). Based on *Eremophila* R. Br. sect. *Eremocosmos* F. Muell. Lectotype species: *Pholidia oppositifolia* (R. Br.) Baill. ex Wettst.

Leaves alternate or rarely opposite. Indumentum of simple or glandular hairs. Calyx segments in bud valvate or narrowly imbricate at the base, becoming valvate at anthesis, rounded or very obtuse at the apex, at length scarious and reticulate. Corolla cut to about $\frac{1}{3}$, the upper lip 2-lobed, the lower lip 3-lobed; lobes all obtuse or rounded, subequal or the two adaxial ones more or less united. Stamens included or shortly exserted. Drupe small, almost dry, the endocarp rather thin, imperfectly 4-celled.

1. Eremophila sturtii R. Br. in Sturt, Exped. Centr. Aust. 2 (App.):85 (1849). Type: on the Darling, *Sturt* (holotype, loc.?).

Bontia sturtii (R. Br.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila sturtii.*

Pholidia sturtii (R. Br.) Baill. ex Wettst. in Eng. & Prantl, Nat. Pflanzenfam. 4 (3b):359 (1895). Based on *Eremophila sturtii.*

A much-branched shrub or less frequently a small tree, 1–2(–5) m high; bark on the stems dark grey, finely and irregularly longitudinally fissured or at length more or less tessellated. *Branchlets* glabrous or more or less glandular-puberulous and viscid towards the tips; the ultimate ones drying dark brown, slender, less than 1 mm diam., ribbed by the decurrent leaf-bases, the internodes 1–3(–5) mm long; the older ones ochraceous or greyish, up to 5 mm diam. *Leaves* alternate, glabrous, viscid, bright green, drying dark brown or somewhat greenish, slightly convex above or flat, linear or rarely linear-lanceolate, (1–)1·5–3(–4) cm long, (0·5–)1–2·5(–3·5) mm wide, narrowed to a petiole-like base *ca* 1–3 mm long, the apex tipped by a hooked point or more rarely obtuse, margin entire and somewhat narrowly recurved or thickened beneath; costa obscure or finely channelled above, elevated beneath; sometimes a single lateral nerve visible on each side of the costa. *Flowers* solitary, axillary; pedicels more or less minutely glandular-puberulous, viscid, curved or the longer ones somewhat sigmoid, 0·6–1·3 cm long, longer than or as long as the calyx. *Calyx* divided almost to the base into 5 soon valvate segments; segments glandular-puberulous on both surfaces, the indumentum longer on the inner one, glabrous or more or less sparsely pubescent on the margins, often viscid and tinged with purple, becoming scarious and reticulately veined, obovate- or oblong-cuneate, 6–9 mm long, 1·5–3·5 mm wide, rounded or obtuse at the apex. *Corolla* lilac or pale mauve, outside sparsely pubescent and with a few minute glandular hairs interspersed, within bearded on the abaxial lobe and down the tube below it to the insertion of the stamens, 1·1–1·5 cm long; tube 0·6–0·9 cm long, narrow for 2–3 mm at the base, somewhat obliquely campanulate above; lobes 5, unequal, free portions of the adaxial pair oblong or ovate, 2·5–3·5 mm long, obtuse, lateral lobes broadly oblong, 3–3·5 mm long, rounded at the apex, the abaxial lobe larger than the others, broadly obovate, 4–5·5 mm long, notched at the apex. *Stamens* included; filaments glabrous. *Ovary* villous, also clothed with short glandular-hairs, oblong or narrowly ovoid, tapering into the style at the apex, 2-celled with 4–6 ovules in each cell; style glabrous or pubescent, 6–8 mm long. *Drupe* with the same type of indumentum as the ovary, ovoid, *ca* 4 mm long (and then perhaps not quite mature), subacute, somewhat compressed and obscurely 2–4 angled, almost dry, imperfectly 4-celled with 1(–2) seeds in each cell. *Seeds* whitish, oblong, *ca* 2·25 mm long.

GREGORY SOUTH DISTRICT: Thylungra, *ca* 130 km NW from Quilpie, Aug 1928, *Francis* WARREGO DISTRICT: Goonamurra, near Eulo, Sep 1938, *Everist* 1652; Dynevor Downs, Jun 1936, *Blake* 11738; near Toompine, Sep 1938, *Everist* 1688.

The species also occurs in New South Wales, north-western Victoria, South Australia, Northern Territory and Western Australia.

Although type material has not been examined, there can be little doubt of the identity of the species from the original description and the field notes accompanying the type collection. Broader leaved forms of the species are almost impossible to distinguish from *E. mitchellii* in the absence of flowers. The narrower distribution of the latter species suggests it may have been derived originally from the more widely spread *E. sturtii*.

The species is common around the margin of claypans where it is often associated with *Acacia aneura* F. Muell. In some locations it tends to occur in pure stands.

2. **Eremophila mitchellii** Benth. in Mitch. Trop. Austral. 31 (1848). Type: Muda, on the Bogan R., Jan 1846, *Mitchell* 121 (holotype, loc.?; isotype, NSW).

Bontia mitchellii (Benth.) O. Kuntze, Rev. Gen. Pl. 2. 501 (1891). Based on *Eremophila mitchellii.*

Pholidia mitchelli (Benth.) Baill. ex Wettst. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3b):359 (1895). Based on *Eremophila mitchellii.*

A shrub or small tree, 2–5(–9) m high; bark on the trunk or stems dark grey or almost blackish, finely and irregularly longitudinally fissured, or at length forming more or less oblong tessellations. *Branchlets* sparsely glandular-puberulous towards the tip or glabrous; the ultimate ones drying dark brown, less than 1 mm diam., ribbed by the decurrent leaf-bases, the internodes 1–3(–5) mm long; the older ones usually ochraceous or sometimes greyish coloured, 2–6 mm diam. *Leaves* alternate, glabrous, viscid, bright green, usually drying dark brown or somewhat greenish, slightly convex above or flat, linear-lanceolate, (1·5–)2·5–4(–6) cm long, (1–)2–4(–7) mm wide, gradually narrowed at the base into a more or less petiole-like portion *ca* 1–3 mm long, the apex tipped by a hooked point or rarely obtuse, margin entire; costa obscure or finely channelled above, elevated beneath; sometimes 1–2 lateral nerves visible on each side of the costa, rarely also a few lax reticulations. *Flowers* solitary or paired (rarely three buds occur) in the leaf axils; pedicels more or less glandular-puberulous, viscid, curved, 0·5–1 cm long, about as long as the calyx. *Calyx* divided almost to the base into 5 soon valvate segments; segments sparsely glandular-puberulous on both surfaces, more distinctly so on the inner, frequently pubescent around the margin, more or less viscid, sometimes purple-tinted, becoming scarious and reticulately veined, obovate-cuneate to elliptic or oblong, 0·5–1·1 cm long, 1·5–5 mm wide, rounded or obtuse at the apex, a little enlarged after anthesis. *Corolla* white or pale cream, glabrous or very sparsely glandular-puberulous outside, pubescent on the margins of the lobes, more or less bearded within from the middle of the abaxial lobe down to the insertion of the stamens, 1·1–1·8 cm long; the tube 0·8–1·1 cm long, cylindrical for 2–4 mm at the base, expanded and obliquely campanulate above; lobes 5, unequal, the free portions of the adaxial pair oblong or ovate, 3–4·5 mm long, obtuse or somewhat acutate, the lateral lobes similar to but more rounded at the apex than the adaxial ones, the abaxial lobe larger than the others, from broadly oblong to oval, 4–5 mm long, rounded, truncate or notched at the apex. *Stamens* included; filaments glabrous. *Ovary* villous, also clothed with short glandular hairs, oblong or narrowly ovoid, tapering into the style at the apex, 2-celled with 6–8 ovules in each cell; style glabrous or pubescent, 7–9 mm long. *Drupe* with the same indumentum as the ovary, ovoid, 4·5–7 mm long, more or less acuminate or subacute at the apex, somewhat compressed and more or less 2(–4) angled, almost dry, at length 2–4-cleft at the apex, imperfectly 4-celled with 1–2 seeds in each cell. *Seeds* whitish, linear-oblong, 2·75–3 mm long.

COOK DISTRICT: Einasleigh R., Lyndhurst Station, Sep 1937, *Brass & White* 334. BURKE DISTRICT: Sussex Park, Hughenden, Jun 1934, *Blake* 6228. NORTH KENNEDY DISTRICT: Charters Towers and Ravenswood area, Apr 1915, *Williams;* Port Denison, *Fitzalan* (MEL). MITCHELL DISTRICT: near Longreach, Jul 1934, *Blake* 6652; just N of Blackall, Oct 1940, *L. S. Smith & Everist* 888; Enniskillen, Nov 1943, *White* 12397. SOUTH KENNEDY DISTRICT: Belyando River, Aug 1846, *Mitchell* 261 (MEL). LEICHHARDT DISTRICT: Blackwater, east of Emerald, Mar 1920, *Francis;* Wandoan, Nov 1930, *Hubbard* 4908. PORT CURTIS DISTRICT: Rockhampton, *Thozet* (MEL); Coreen, Callide Valley, Apr 1937, *White* 10890. BURNETT DISTRICT: Eidsvold, Feb 1911, *T. L. Bancroft.* WARREGO DISTRICT: about 12 km E of

Charleville, Oct 1940, *L. S. Smith & Everist* 836. MARANOA DISTRICT: Roma, Mar 1936, *Blake* 10831. DARLING DOWNS DISTRICT: NNW of Bungunya, Jul 1945, *Blake* 15875; Kindon Station, *ca* 85 km NNE of Goondiwindi, Dec 1938, *L. S. Smith* 545.

The species also occurs in New South Wales.

E. mitchellii appears to be one of the most adaptable species in Queensland as it grows equally well associated with *Eucalyptus moluccana* on heavy soil flats, with *Acacia harpophylla* (Brigalow), *Geijera parviflora* (Wilga) and *Casuarina cristata* (Belah) and with *Acacia cambagei* (Gidgee) on clay soils, and with *Acacia aneura* (Mulga) frequently on light reddish sandy soils. In addition, isolated trees frequently occur on open downs country, as well as in other types of forest.

In the far south-west, this species is replaced by the closely allied and more widely spread *E. sturtii.*

The timber of *E. mitchellii* is hard and fine grained, the heartwood brownish. Penfold, J. Roy. Soc. N.S.W. 70:24 (1936), states that under the name of "Rosewood", it has been exported to the East as a substitute for incense. The scented wood is probably responsible for the local names Sandalwood and Buddah, by which the species is usually known.

Sections of the leaves of *E. mitchellii* and *E. sturtii* show that shortly stalked, discoid-headed glands occur in shallow depressions on both surfaces.

3. Eremophila oppositifolia R. Br. var. **rubra** White & Francis, Proc. Roy. Soc. Qd 37:162 (1926). Type: Wilson R., Sep 1923, *MacGillivray* 935 (holotype, BRI).

Eremodendron cunninghamii DC. Prod. 11:712 (1847). Type: on the Lachlan R., interior of N.S.W., Jun 1817, *A. Cunningham* (holotype, G–DC, not seen).

Eremophila aborescens A. Cunn. ex DC. Prod. 11:712 (1847), *nom nud.*

Eremophila cunninghamii (DC.) R. Br. in Sturt. Exped. Cent. Aust. 2 (App.):84 (1849). Based on *Eremodendron cunninghamii.*

A small tree, or sometimes shrubby, 2–6(–10) m high; bark dark grey, tessellated. *Branchlets* hoary or somewhat yellowish from a dense appressed minute pubescence, rarely glandular-tuberculate; the ultimate ones ribbed by the decurrent leaf-bases, 1–2·5 mm diam., the internodes 1–9 mm long; the older ones greyish or occasionally somewhat brownish, 2–5 mm diam., roughened by the fairly prominent persistent leaf-bases or at length smooth. *Leaves* alternate, densely and minutely appressedly pubescent, more or less silvery, drying yellowish- or greyish-green or the older ones dark brown, often rugulose, flat or towards the extremities concave above, linear or linear-lanceolate, (2–)4–8(–10) cm long, (2–)3–5(–7) mm wide, gradually narrowed into a petiole-like portion at the base *ca* 1–4 mm long, the apex tipped by a hooked point, margin entire; costa obscure to slightly prominent above, elevated beneath; lateral nerves often, and lax reticulations sometimes visible. *Flowers* solitary or paired (rarely up to four) in the leaf axils; pedicels appressedly pubescent, curved, 3–7 mm long, shorter than the calyx. *Calyx* divided almost to the base into 5 segments, soon valvate towards the base; segments sparsely and appressedly pubescent on both surfaces, slightly enlarged after anthesis and at length scarious and reticulately veined, obovate-spathulate, (5–)8–18 mm long, (1·5–)3–7 mm wide, sometimes very variable in size on the one specimen, rounded or obtuse at the apex, contracted into a claw at the base. *Corolla* cream or pink or brown tinged, glabrous outside, pubescent around the margins of the lobes, more or less pilose within the tube and more densely so towards the base, 1·6–2·8 cm long; tube 1·3–2·2 cm long, the narrower basal portion *ca* 2–5 mm long, expanded above and slightly curved; lobes 5, unequal, the free portions of the adaxial pair ovate, 3·5–7 mm long, obtuse, comprising almost the whole of each lobe, the lateral lobes similar to but often slightly broader or more obtuse than the adaxial lobes, the abaxial lobe largest, oval, 4·5–7·5 cm long, notched or bilobed at the apex. *Stamens* at length shortly exserted; filaments glabrous or pubescent at the base. *Ovary* densely and appressedly pubescent, oblong, 3–6 mm long, slightly compressed, contracted into the style at the apex, 2-celled with usually only 2 ovules in each cell; style more or less pubescent, 1·4–2 cm long. *Drupe* with the indumentum of the ovary, oblong or linear–oblong, 4–7 mm long, obtuse or subacute at the apex, somewhat compressed and obscurely 2–4-angled, almost dry, imperfectly 4-celled with 1 seed in each cell. *Seeds* not seen mature, immature ones linear-oblong, *ca* 2·5 mm long.

GREGORY NORTH DISTRICT: Buckingham Downs, S of Dajarra, Jul 1936, *Blake* 12394. MITCHELL DISTRICT: Lorne Peak on northern scarp of Gowan Range, *ca* 80 km SSW of Blackall, Aug 1939, *Everist* 1871. GREGORY SOUTH DISTRICT: near Wilson R., Sep 1923, *MacGillivray* 935. WARREGO DISTRICT: Warrego Ra., Sep 1923, *MacGillivray* 936; Oakwood Station, *ca* 80 km N of Charleville, Oct 1940, *L. S. Smith & Everist* 859.

This variety also occurs in New South Wales.

So far as specimens examined reveal, the type variety and the above variety of *E. oppositifolia* do not overlap in their distribution except around Broken Hill, New South Wales. All of the specimens examined from Western Australia, South Australia, and Victoria belong to variety *oppositifolia* which appears also to occur in the south-western corner of New South Wales. The majority of the New South Wales specimens examined and all from Queensland localities belong to the variety *rubra.*

White and Francis distinguished their variety originally upon its smaller, red flowers. In the sense accepted in the present paper, this variety is distinguished from the type variety by the broader leaves (very rarely attaining 3 mm in the type variety) which are consistently alternate (opposite or subopposite in the type variety).

The hairs of the indumentum of *E. oppositifolia* are somewhat like those present in some forms of *E. longifolia.* Although the flowers vary considerably in size amongst the different specimens and sometimes on the same specimen, *Blake* 12394, which is the most northerly locality record, possesses consistently small flowers and glaucous leaves giving it a rather characteristic appearance. In Queensland, variety *rubra* appears to flourish on rocky slopes of inland hills and ridges.

Section **Eriocalyx** Benth. Fl. Aust. 5:17 (1870). Lectotype species: *Eremophila eriocalyx* F. Muell.

Pholidia R. Br. sect. *Eriocalyx* (Benth.) Wettst. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3b):359 (1859). Based on *Eremophila* R. B. sect. *Eriocalyx* Benth. Lectotype species: *Pholidia eriocalyx* (F. Muell.) Baill. ex Wettst.

Leaves alternate. Calyx segments in bud valvate or narrowly imbricate at the base, becoming valvate at anthesis, subacute or acuminate, remaining soft and herbaceous or rarely becoming scarious, densely clothed with a stellate or subplumose indumentum, or rarely the indumentum restricted to the margins of the lobes. Corolla cut from ⅓ to ⅜, the upper lip 2-lobed, the lower lip 3-lobed (rarely approaching the ¼ condition in *E. latrobei*); lobes slightly unequal, the two adaxial ones united and the abaxial one usually somewhat larger. Stamens included or exserted. Drupe small, rarely slightly longer than the calyx, almost dry, the endocarp frequently rather thin.

4. Eremophila obovata L. S. Smith, Proc. Roy. Soc. Qd 87:33 (1956). Type: Manner's Creek Station, Northern Territory, Aug 1953, *Rose* 374 (holotype, BRI).

Low shrub, 30–50 cm tall, much branched. *Branches* tomentose, covered with subplumose multibranched hairs, more or less glandular-tuberculate, terete, 1–3 mm diam., the very old ones more or less glabrescent, brownish, marked by the bases of the fallen leaves. *Leaves* spiral, lamina thinly covered with subplumose scabrid hairs or sometimes glabrous, green when dry, obovate, 0·6–1·3 cm long, 2·5–9 mm broad, the apex rounded or truncate often very shortly acuminate or sometimes 3(–5)-dentate, narrowed towards the base, the margin narrowly recurved, the costa above channelled, below more or less raised; petioles 0·2–2 mm long, more or less winged by the decurrent lamina. *Flowers* solitary, axillary; pedicel thinly subplumose-tomentose, very frequently shorter than the calyx, 2–6 mm long. *Calyx* 5-partite; segments subequal, more or less valvate, herbaceous, lanceolate, 6–7 mm long, *ca* 2·5 mm broad, the apex subacute, covered outside with subplumose hairs which are denser towards the margin, except for the barbate base sparsely pubescent inside with branched hairs, enlarged after anthesis, at length more or less firmly chartaceous, up to 9 mm long, to 3 mm broad, glandular-punctate, more or less reticulate veined.

Corolla pale purple, paler inside, 1·7–2·2 cm long, except for the lower glabrous part covered on the outside with branched hairs; tube *ca* 1·3 cm long, shortly narrowed at the base but soon expanded, barbate inside on the front and back except at the base; lobes 5, unequal, the 2 posterior ones broadly ovate, 5–7 mm long, united for up to ⅓–⅔, the lateral lobes obliquely ovate or narrowly obovate or oblong, 5–7 mm long, 3–4 mm broad, the middle one obovate, 6–7 mm long, channelled inside in the middle. *Stamens* 4, included; filaments more or less pubescent. *Ovary* glabrous, ovoid, *ca* 2·5 mm long, 2-locular; ovules 3–4 in each loculus; style glabrous or sparsely pubescent. *Fruit* drupaceous, usually dry, glabrous, subglobose, 6–8 mm diam., about as long as the calyx, 4-locular with (1–)2 seeds in each locule. *Seeds* white, *ca* 2–3 mm long.

(a) **Eremophila obovata** var. **obovata.** Leaves thinly covered with subplumose hairs.

GREGORY NORTH DISTRICT: Between Glenormiston and Toko Ranges, Jan–Feb 1935, *Boyle;* near Boulia, Jul 1936, *Blake* 12359; Bedourie, Jul 1936, *Blake* 12326.

(b) **Eremophila obovata** var. **glabriuscula** L. S. Smith, Proc. Roy. Soc. Qd 87:34 (1956). Type: *Everist* 3228 (holotype, BRI). Differing from variety *obovata* in the glabrous leaves.

GREGORY NORTH DISTRICT: Kallala, between Dajarra and Carandotta, Nov 1947, *Everist* 3228; Georgina R., Sep 1910, *Bick* 16.

See Smith (1956) for further discussion.

5. **Eremophila cordatisepala** L. S. Smith, Proc. Roy. Soc. Qd 87:32 (1956). Type: W of Windorah, Jul 1936, *Blake* 12111 (holotype, BRI).

Low shrub, 30–50 cm tall, much branched, with white or pale yellow many-branched or more or less plumose or stellate hairs. *Branches* densely tomentose, glandular-tuberculate, terete, 1–3(–5) mm diam., grey or straw-yellow when old, more or less glabrescent, sometimes marked with longitudinal lenticels. *Leaves* spirally arranged, tightly congested towards the apex of the branches, densely tomentose, oblanceolate, 0·5–1·5(–2·5) cm long, 1·5–4(–7) mm broad; the apex more or less acute or obtuse; the base cuneate, scarcely petiolate; margins entire, often a little recurved; costa inconspicuous or channelled above, elevated below. *Flowers* solitary, axillary; pedicel tomentose, shorter than the calyx, 2–4 mm long. *Calyx* 5-parted, 5-nerved to the margins of the segments in bud; segments more or less valvate, herbaceous, scarcely diverging from each other, tomentose except for the glabrous lower part of the inner surface, ovate or ovate-lanceolate, 0·7–1(–1·3) cm long, 3–5 mm broad; the apex acute or acuminate, after anthesis enlarged, at length 1–1·3(–1·8) cm long, 0·7–0·9 (–1·3) cm broad, softly chartaceous, net-veined, glandular-punctate; the base subcordate. *Corolla* becoming a sky blue, *ca* 2 cm long (complete state not seen), *ca* 0·8 cm long in bud, covered with sparsely branched hairs above the middle on the outside; tube inside barbate in the front and back, shortly cylindrical from the base and much expanded above; posterior lobe broadly ovate; anterior lobe obliquely ovate or broadly rhomboid-ovate. *Stamens* 4, included (?), filaments more or less sparsely pubescent. *Ovary* glabrous, ovoid, *ca* 2·75 mm long, 2-locular; ovules 4 in each locule; style more or less pubescent towards the base. *Fruit* drupaceous, more or less dry, glabrous, ovoid or subglobose, *ca* 8 mm long, 4–6 mm broad, more or less acute at the apex; putamen hard, subcompressed, longitudinally ribbed, 4-locular, with (1–)2 seeds in each locule. *Seed* white, 2–3 mm long.

GREGORY NORTH DISTRICT: Ardmore Station, *ca* 45 km W of Dajarra, Nov 1947, *Everist* 3249 and Sep 1951, *Everist* 4469A. GREGORY SOUTH DISTRICT: *ca* 70 km W of Windorah, Jul 1946, *Blake* 12111; *ca* 8 km W of Canterbury, Aug 1949, *Everist* 4054.

See Smith (1956) for further discussion.

6. **Eremophila latrobei** F. Muell. Rep. Babb. Exped. 17 (1858). Type: Edges of desert on Thompson R., [*ca* 1858], *Gregory* (lectotype, MEL).

Eremophila tuberculata F. Muell. Proc. Roy. Soc. Tas. 3:294 (1859), *nom nud.*

Eremophila tietkensii F. Muell. & Tate, Trans. & Proc. Roy. Soc. S. Aust. 13:109 (1890). Type: Mt. Sonder, in 1889, *Tietkens* (lectotype, MEL).

Bontia latrobei (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila latrobei.*

A shrub or small tree 1–3 m high. *Branchlets* stellate-tomentose or sometimes sparsely stellate-pubescent, glandular-tuberculate; the ultimate ones yellowish-brown to brown, ribbed above by the decurrent leaf-bases, sometimes roughened below by the persistent leaf-bases, rather densely leafy, the internodes up to 0·8 cm long. *Leaves* alternate, closely stellate-tomentose or more rarely sparsely stellate-pubescent and at length glabrous, rather thick, lanceolate to linear-lanceolate or sometimes linear, (1–)1·5–4(–5) cm long, (1–)1·5–4(–5) mm wide, tapering into a petiole-like base *ca* 1–6 mm long, the apex subacute or acute, flat or with the margins recurved and often glandular-tuberculate; midrib finely channelled above, elevated beneath towards the leaf-base. *Flowers* solitary in the leaf axils; pedicels stellate-tomentose, slightly curved, 5–12 mm long, shorter than the calyx. *Calyx* divided almost to the base into 5 equal or subequal valvate segments; segments stellate-pubescent outside, more densely so towards the margins, and in the upper third within, lanceolate, 1–2 cm long, 2·5–6 mm wide, acute, scarcely enlarged after flowering but becoming scarious and reticulately veined. *Corolla* pale red to purplish, more or less sparsely glandular-puberulous outside and in the upper portion within, within pilose in the lower part of the tube beneath the abaxial lobe, 2·2–3·5 cm long; tube 1·5–2 cm long, curved, expanded from the base; lobes 5, unequal, the adaxial pair shorter, ovate, 4–5·5 mm long, 3–5 mm wide, subacute, the lateral lobes 5–8 mm long, 3–5 mm wide, subacute or obtuse, the abaxial lobe 5–9 mm long, 4–6 mm wide, obtuse, lateral and abaxial lobes ovate-oblong or oblong. *Stamens* long exserted; filaments glabrous. *Ovary* glabrous, narrowly ovoid-conical, 4–5 mm long, 2-celled with 4 ovules in each cell; style glabrous, 2·5–3·5 cm long. *Drupe* broadly ovoid, shortly beaked, 6–10 mm long, almost dry, the endocarp rather thin, 4-celled with 2 seeds in each cell. *Seeds* pale straw coloured or whitish, linear-oblong, *ca* 4 mm long.

BURKE DISTRICT: Cloncurry, Jun 1934, *Blake* 6366. GREGORY NORTH DISTRICT: Georgina River, Sep 1910, *Bick* 72; N of Boulia, Jul 1936, *Blake* 12390. MITCHELL DISTRICT: Edges of the desert of the Thompson R., [*ca* 1858], *Gregory* (MEL); Lorne Peak on top of Gowan Ranges, *ca* 80 km SSW of Blackall, Feb 1940, *Everist* 2000. GREGORY SOUTH DISTRICT: Near Eromanga, Jul 1936, *Blake* 11895; W of Windorah, Jul 1936, *Blake* 12121. WARREGO DISTRICT: Widgeegoora Ck., Charlotte Plains, *ca* 50 km E of Cunnamulla, Sep 1894, *Ivory;* Warrego Range, Aug 1923, *MacGillivray* 938; Quilpie, May 1928, *C. T. White;* Dynevor Downs near Eulo, Apr 1941, *C. T. White* 11486.

The species also occurs in New South Wales, South Australia, Western Australia, and Northern Territory.

Eremophila latrobei var. **glabra** L. S. Smith* var. nov. a typo segmentibus calycis ad margines tantum pubescentibus, foliis glabris differt. Typus: Tenham, near Windorah, Jun 1936, *Blake* 12030 (holotypus, BRI).

GREGORY NORTH DISTRICT: Roxborough, Dec 1895, *F. M. Bailey;* Headingly, near Urandangie, May 1944, *Moreton;* Breadalbane, N of Bedourie, Jul 1936, *Blake* 12333. MITCHELL DISTRICT: S of Jundah, Jul 1936, *Blake* 12067; *ca* 25 km S of Stonehenge, Jun 1937, *Everist* 1557. GREGORY SOUTH DISTRICT: Windorah, Jul 1936, *Blake* 12095; Tenham, near Windorah, Jun 1936, *Blake* 12030. WARREGO DISTRICT: Morven, May 1934, *Blake* 5642.

Also in Northern Territory, South Australia and probably New South Wales and Western Australia.

Eremophila latrobei forma **flava** L. S. Smith forma nov. a typo forma floribus flavis differt. Typus: *Blake* 12122 (holotypus, BRI).

GREGORY SOUTH DISTRICT: 45 miles W of Windorah, Jul 1936, *Blake* 12122. MITCHELL DISTRICT: Barcarolle near Jundah, May 1920, *Berney* C2.

Mueller cited ten localities with the original description of *E. latrobei,* but in MEL, specimens from only three of these localities could be found. Babbage's specimens are at the British Museum (Natural History). No specimens of Mueller could be found to substantiate his recording of this species from the Queensland localities of Newcastle Range, Suttor River, Burdekin River or

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* This is probably the diploid taxon referred to by Barlow in Aust. J. Bot. 19:303 (1971)—R.J.F.H.

Mackenzie River nor does it appear that any specimens have been collected from these localities since. Gregory's specimen from the Thompson River has been chosen as the lectotype of the species as it is the best of the syntypes remaining in Mueller's herbarium, and it does not differ essentially from the protologue description.

In the var. *glabra,* the stellate-pubescence may be lacking from the branchlets except for above the leaf-axils. The tips of the branchlets are more or less glandular-puberulous as also are the young leaves. Whether or not the back of the calyx of unopened flower-buds is stellate-pubescent is the most convenient diagnostic character for differentiating between varieties. *Blake* 11387 is very similar to *E. latrobei* var. *glabra* but differs in having the pedicels much longer than the calyx, and up to 2 cm long. As the specimen bears fruit only, it will be necessary to await flowering specimens before any conclusion as to its correct status can be reached.

E. tietkensii was based on two specimens collected by Tietkens: one from Mt. Sonder and the other from Laura Vale, Beetson's Hills. Although the first specimen is undoubtedly *E. latrobei,* as yet I have been unable to place the second specimen which has leaves about 1·5 cm wide.

7. Eremophila macgillivrayi J. M. Black, Trans. & Proc. Roy. Soc. S. Aust. 1:286 (1926). Type: near Cordillo Downs, South Australia, Sep 1922, *MacGillivray* (holotype, MEL).

A shrub or small tree, 1–3 m high. *Branchlets* hoary or somewhat cream coloured, with a dense close stellate tomentum, marked by rather prominent, persistent and crowded leaf-bases; the ultimate ones ribbed by the decurrent leaf-bases, rather stout, up to 2 mm diam., densely leafy with internodes up to 3 mm long; the older ones light brown, rounded, up to 5 mm diam. *Leaves* alternate, densely and closely stellate-tomentose, glaucous or silvery, the older ones more or less rugulose, flat, lanceolate, (1·5–)2·5–4·5(–6) cm long, (2–)3–5(–6) mm broad, narrowed into a short, scarcely petiole-like base *ca* 1–3 mm long, the apex acute or sometimes obtuse, margin entire; midrib finely channelled or obscure above, slightly elevated beneath; the lateral nerves occasionally manifest. *Flowers* solitary, axillary; pedicels closely stellate-tomentose, somewhat 5-angled, straight and ascending or spreading, 0·8–1·3 (or perhaps more) cm long, as long as or longer than the calyx. *Calyx* deeply divided into 5 subequal, more or less valvate segments; segments densely stellate-tomentose on both surfaces, broadly lanceolate to lanceolate, 0·4–1 cm long, up to 2–3 mm wide, the adaxial one sometimes slightly broader than the remainder, all acute, slightly enlarged after flowering. *Corolla* reddish, sparsely stellate-pubescent outside, sparsely glandular-puberulous within, *ca* 2·5 cm long; the tube more or less expanded from the base, *ca* 1·4 mm long; lobes 5, unequal, the adaxial pair ovate, *ca* 2 mm long and wide, obtusely pointed, the lateral ones oblong, *ca* 3·5 mm long, 2·5 mm wide, rounded at the apex, the abaxial lobe linear-oblong, *ca* 9 mm long, 3·5 mm wide, obtuse. *Stamens* 4, rarely 5, shortly exserted; filaments pubescent in the lower portion. *Ovary* subplumose-tomentose, ovoid, *ca* 3 mm long, 2-celled with 2–3 ovules in each cell; style pubescent towards the base, *ca* 1·7 mm long. *Drupe* with the tomentum of the ovary, ovoid, or subglobular, *ca* 1 cm long, not or scarcely exceeding the calyx, almost dry, 4-celled with 1–2 seeds in each cell. *Seeds* whitish, *ca* 3–4 mm long.

GREGORY SOUTH DISTRICT: Between Stokes Range and Cooper's Ck., in 1861–2, *Wheeler* (MEL); Bransby, via Noccundra, in 1946, *Skerman*.

The species also occurs in north-eastern South Australia.

J. M. Black placed this species in the section correctly named *Stenochilus*. Examination of the single opened corolla on the type sheet, however, shows that the abaxial lobe is not as deeply divided as is typical in members of this section, while the valvate, densely stellate-tomentose calyx clearly indicates the species relationship with members of section *Eriocalyx*. *E. latrobei* sometimes has the corolla as deeply cut as *E. macgillivrayi,* and in respect to this feature, both species approach section *Stenochilus*.

8. Eremophila bowmanii F. Muell. Fragm. 2:139 (1861). Type: Upper Darling tributaries, *Bowman* (holotype, MEL).

Bontia bowmanii (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila bowmanii.*

An ascendingly branched shrub, 0·3–1·5 m high, with silvery-grey foliage. *Branchlets* densely tomentose with long plumose hairs, sparsely glandular-tuberculate, marked by the persistent leaf-bases; the ultimate ones whitish or yellowish from the tomentum, up to 1·5 mm diam., rounded, rather densely leafy, the internodes 0·5–5(–7) mm long; the older ones brown to reddish-brown, rounded, up to 4 mm diam. *Leaves* alternate, clothed with an indumentum similar to that of the branchlets though sometimes shorter or less dense, silvery or somewhat glaucous, drying greenish, yellowish or brown coloured, linear or linear-lanceolate (1–)1·5–3(–4) cm long, (1–)1·5–3(–4) mm wide, shortly contracted at the base, the apex obtuse to subacute, margin entire, recurved; midrib finely channelled above, elevated beneath. *Flowers* solitary or rarely paired, axillary, the pedicels clothed with a very long loose indumentum of plumose hairs, more or less straight or somewhat sigmoid, 1·0–2·6 cm long. *Calyx* divided almost to the base into 5 subequal valvate segments; segments plumose-tomentose on both surfaces though more shortly so within, linear-lanceolate to lanceolate, 0·9–1·9 cm long, 2–5 mm wide, subacute, scarcely enlarged after flowering. *Corolla* blue or lavender, sparsely pubescent outside in the upper portion with branched hairs, bearded within the tube below the two adaxial lobes and below the abaxial lobe to the insertion of the stamens, 1·8–2·5 cm long; the tube narrow at the base for

2–4 mm, expanded above, 1·2–1·8 cm long; lobes 5, unequal, the free portion of the adaxial pair broadly ovate, 2·5–5 mm long, 3·5–5 mm wide, the abaxial lobe 6–8 mm long, 5–7 mm wide, broadly oblong or obovate, all obtuse or the abaxial one truncate or notched. *Stamens* included; filaments bearded at the base, pubescent above. *Ovary* glabrous, narrowly ovoid, somewhat compressed, 3–4·5 mm long, 2-celled with 4 ovules in each cell; style more or less pubescent, 1–2 cm long. *Drupe* glabrous ovoid, 0·6–0·8 cm long, subacute or acuminate, almost dry, the endocarp rather thin, 4-celled with 2 seeds in each cell. *Seeds* whitish, linear-oblong, *ca* 3 mm long.

MITCHELL DISTRICT: Lorne Peak, Gowan Range, *ca* 80 km SSW of Blackall, Feb 1940, *Everist* 1991. WARREGO DISTRICT: Gilruth Plains, E of Cunnamulla, May 1939, *Blake* 14038; Oakwood Station, *ca* 80 km N of Charleville, Oct 1940, *L. S. Smith & Everist* 865.

The species also occurs in New South Wales.

Eremophila bowmanii var. **latifolia** L. S. Smith var. nov. a typo speciei foliis latioribus ca 4–9 mm latis, margine angustissime recurvis, indumento praesertim pedicellorum breviori differt. Typus: Bulloo R., in 1887, *Moreton* (holotypus, MEL).

MITCHELL DISTRICT: S of Jundah, Jul 1936, *Blake* 12068. WARREGO DISTRICT: near Thargomindah, May 1939, *Blake* 14089.

The variety also occurs in northern New South Wales.

The bluish corolla, the almost straight corolla tube, and the incisions between the corolla lobes all extending to about the same distance from the base of the corolla or those separating the two lips slightly deeper than the remainder, are all features which help to characterize the species.

Section **Amphichilus** (DC.), L. S. Smith comb. nov. Based on *Stenochilus* R. Br. sect. *Amphichilus* DC. Type species: *Eremophila longifolia* (R. Br.) F. Muell.

Stenochilus R. Br. sect. *Amphichilus* DC. Prod. 11:714 (1847). Type species: *Stenochilus longifolius* R. Br.

Pseudopholidia DC. Prod. 11:704 (1847). Type species: *Pseudopholidia brevifolia* (Bartl.) DC.

Stenochilus R. Br. sect. *Platychilus* Benth. in Mitch. Trop. Aust. 386 (1848). Type species: *Stenochilus bignoniiflorus* Benth.

Pholidiopsis F. Muell. Linnaea 25:429 (1852). Type species: *Pholidiopsis santalina* F. Muell.

Duttonia F. Muell. Hook. J. Bot. 8:73 (1856) non F. Muell. (1852), *nom. illeg.* Type species: *Duttonia gibbifolia* F. Muell., *nom. illeg.*

Pholidia R. Br. sect. *Eremicola* F. Muell. Hook. J. Bot. 8:201 (1856). Type species: *Pholidia polyclada* F. Muell.

Pholidia R. Br. sect. *Sentis* F. Muell. Hook. J. Bot. 8:201 (1856). Type species: *Pholidia divaricata* F. Muell.

Eremophila R. Br. sect. *Duttonia* F. Muell. Rep. Babb. Exped. 18 (1858). Based on *Duttonia* F. Muell. (1856). Type species: *Eremophila gibbifolia* "gibbosifolia" F. Muell.

Eremophila R. Br. sect. *Sentis* (F. Muell.) F. Muell. Rep. Babb. Exped. (1858). Based on *Pholidia* R. Br. sect. *Sentis* F. Muell. Type species: *Eremophila divaricata* (F. Muell.) F. Muell.

Eremophila R. Br. sect. *Platychilus* (Benth.) F. Muell. Rep. Babb. Exped. 17 (1858). Based on *Stenochilus* R. Br. sect. *Platychilus* Benth. Type species: *Eremophila bignoniiflorus* (Benth.) F. Muell.

Sentis (F. Muell.) F. Muell. Fragm. 4:47 (1863). Based on *Pholidia* R. Br. sect. *Sentis* F. Muell. Type species: *Sentis rhynchocarpa* F. Muell. *nom. superf.* (*Pholidia divaricata* F. Muell. *pro syn. incl.*).

Pholidia R. Br. sect. *Lancifoliae* Kraenzl. Feddes Repert. Beih. 54:43 (1929). Lectotype species: *Pholidia bignoniiflora* (Benth.) Kraenzl.

Leaves alternate. Calyx segments in bud distinctly imbricate, rarely almost valvate at anthesis (in some forms of *E. gilesii* and *E. longifolia*) but then neither very obtuse and becoming scarious nor densely stellate-tomentose, acuminate, subacute or more rarely obtuse or rounded, remaining herbaceous or at length scarious. Corolla cut from $\frac{1}{3}$ to $\frac{3}{8}$, the upper lip 2-lobed, the lower lip 3-lobed (rarely approaching the 4:1 condition in *E. longifolia*); lobes slightly unequal the two adaxial ones more or less united and the abaxial one usually somewhat larger. Stamens included or exserted. Fruit longer or shorter than the calyx, succulent to almost dry, the endocarp rather stout. Indumentum various, in the Queensland species never stellate.

9. Eremophila gilesii F. Muell. Fragm. 8:49 (1837). Type: Macdonnell Ra., *Giles* (holotype, MEL).

Eremophila goodwinii F. Muell. var. *angustifolia* F. Muell. Enum. Stuart's Pl. 14 (1863). Type: Marchant's Springs, in 1862, *Stuart* (holotype, MEL).

Eremophila berryi F. Muell. Fragm. 8:228 (1874). Type: Extra-tropical Central Australia, in 1873, *Grosse* (holotype, MEL).

Bontia gilesii (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila gilesii*.

Bontia berryi (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila berryi.*

Pholidia gilesii (F. Muell.) Baill. ex Wettst. in Engl. & Prantl, Naturl. Pflanzenfam. 4(3b):359 (1895). Based on *Eremophila gilesii.*

Eremophila gilesii F. Muell. var. *argentea* Ewart, in Ewart & Davies, Fl. N. Terr. 253 (1917). Type: 60 miles NE of Camp 2, Northern Territory, Jun 1911, *Hill* 286 (holotype, MEL).

Eremophila gilesii F. Muell. var. *filiformis* Ewart, *loc. cit.* Type: 35 miles NE of Camp 2, Northern Territory, Jun 1911, *Hill* 242b, 245 (syntypes, MEL).

A low shrub of 0·5–1·5 m in height, the branches ascending or spreading. *Branchlets* pubescent with curved hairs, often densely so and somewhat hoary towards the tips, usually viscid; the ultimate ones ribbed by the decurrent leaf-bases towards the apex, 0·5–1·5 mm diam., moderately to densely leafy, the internodes 0·1–1 cm long. *Leaves* alternate, more or less pubescent with curved hairs, sometimes viscid, dull green, drying dark brown or somewhat greenish, the younger ones infolded or channelled above, the older ones at length more or less flat, linear or linear-lanceolate (1–)2–5(–7) cm long, (1–)1·5–3(–5) mm wide, very gradually narrowed towards the base, acute or subacute at the apex, margin denticulate or in the young leaves entire; midrib finely channelled above, elevated beneath. *Flowers* solitary or rarely paired, axillary; pedicels pubescent with curved hairs, viscid, usually flattened, ascending or sigmoid, 1·2–4 cm long, slightly longer to much longer than the calyx. *Calyx* divided almost to the base into 5 unequal or more rarely almost equal, imbricate or more rarely narrowly imbricate segments; segments pubescent with curved hairs on both surfaces, also bearing short glandular hairs interspersed at least on the inner surface, the three outer ones subequal, lanceolate, 0·8–1·5 cm long, 2–4(–5) mm wide, the two abaxial ones sometimes slightly shorter and narrower than the adaxial one, the two inner lateral segments narrowly lanceolate, 0·6–1·2 cm long, up to 0·2 cm wide, all more or less long-acuminate and acute at the apex, scarcely enlarged under the fruit and remaining herbaceous. *Corolla* pale blue, becoming darker with age, paler within the tube and sometimes brown-spotted, pubescent outside, densely bearded within beneath the two upper lobes down to about the middle of the tube and more thinly below the lower lip down to the insertion of the stamens, 1·8–3·2 cm long; the tube 1·2–1·6 cm long, cylindrical for 2–5 mm at the base, expanded and campanulate above; lobes 5, unequal, the free portions of the adaxial pair 2–3 mm long, the lateral lobes broadly oblong to ovate, 0·6–1·1 cm long, 5–7 mm wide, rounded or more or less pointed, the abaxial lobe 0·7–1·3 cm long, 0·6–1 cm wide and sub-rotund, broadly obovate or somewhat rhomboidal. *Stamens* included; filaments more or less pubescent. *Ovary* villous with much shorter glandular hairs interspersed with long simple ones, ovoid, *ca* 3·5 mm long, 2-celled with 6 ovules in each cell; style 1–1·8 cm long, pubescent. *Drupe* with a similar though more sparse indumentum to the ovary, broadly ovoid to subglobular, 1–1·3 cm long, rounded at the apex, almost dry, 4-celled with (2–)3 seeds in each cell. *Seeds* whitish, *ca* 2 mm long.

GREGORY SOUTH DISTRICT: Windorah, Jul 1936, *Blake* 12096. WARREGO DISTRICT: Warrigal R., Coongoola, Aug 1910, *Hobson* (MEL); Charleville, Sep 1925, *Francis;* Eulo, Oct 1930, *Tambling*. MARANOA DISTRICT: Bollon–Cunnamulla Road, Oct 1938, *Roe* 7.

The species also occurs in New South Wales, South Australia, Northern Territory and Western Australia.

The type sheet of *E. gilesii* contains two specimens, one with narrower leaves approaching those on the type of *E. gilesii* var. *filiformis,* the other with slightly broader leaves somewhat intermediate between those in the varieties *filiformis* and *argentea*. The latter specimen comes very close to the type of *E. berryi*. The breadth of the leaves, the density of pubescence of both leaves and corolla and the degree of viscidity vary widely in the large range of specimens of this species examined. However, as all intermediate stages were represented, it appears appropriate at this stage to consider it a single polymorphic species incapable of satisfactory subdivision.

The type specimen of *E. clarkei* F. Muell., a species which J. M. Black considered may be identical with *E. gilesii,* was not located amongst the specimens in the Melbourne herbarium. However, Maitland Brown's specimen, which was cited by Bentham, differs from *E. gilesii* in possessing stellate hairs and a calyx somewhat similar to that of *E. latrobei*.

E. gilesii had for a long time been known as *E. goodwinii* in Queensland, due to the misidentification of Weale's specimen cited in Bailey's Queensland Flora. It is well known in the south-west of the State as Charleville Turkey Bush. *E. goodwinii* is readily distinguished from it by the absence of curved hairs, the long spreading hairs on the pedicel and calyx and the absence of glandular hairs on the ovary and fruit.

10. Eremophila freelingii F. Muell. Proc. Roy. Soc. Tas. 3:295 (1859). Type: From the desert adjoining Blanche R. near Lake Torrens, *Hawker* (holotype, loc.?).

Bontia freelingii (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila freelingii.*

An erect bushy shrub, 1–3 m high. *Branchlets* pubescent with curved hairs, usually glandular-tuberculate, roughened by the persistent leaf-bases; ultimate ones brownish or hoary, towards the tips viscid and rather prominently ridged by the decurrent leaf-bases, relatively stout, 1–2·5 mm diam., densely leafy, the internodes 1–5 mm long; lower ones brownish or rarely greyish, rounded, up to 4 mm diam. *Leaves* alternate, at first densely but becoming sparsely pubescent with curved hairs, the hairs often obscured on the older leaves by the viscid covering, dull green or somewhat glaucous, drying greenish to dark brown, flat or slightly concave above, narrowly lanceolate to lanceolate (2–)3–6(–8) cm long, (2–)3–6(–8) mm wide, narrowed into a petiole-like base *ca* 0·3–1·2 cm long, tapering into an acute or subacute apex, margin entire; midrib finely channelled above, elevated beneath; lateral veins in the older leaves manifest above. *Flowers* solitary or up to three in each leaf axil; pedicels pubescent with curved hairs, viscid, almost straight to somewhat sigmoid, ascending or spreading, 1–2·5 cm long, longer than or rarely only as long as the calyx. *Calyx* segments more or less pubescent on both surfaces with curved hairs (more densely so on the margins) and with minute glandular hairs interspersed, viscid, the adaxial segment longest, ovate to broadly lanceolate, 0·9–2·0 cm long, 4–8 mm wide, the abaxial outer segments 0·8–1·5 cm long, 2·5–4 mm wide, lanceolate, the inner lateral segments narrowly lanceolate, 0·6–1·2 cm long, 1·5–2·5 mm wide, all rather acute or acuminate, scarcely enlarged and remaining herbaceous or becoming more or less scarious under the fruit. *Corolla* lilac, lavender, or pale blue, paler within and sometimes pale brown spotted, pubescent outside, densely bearded within on the abaxial lobe and down the tube below to the insertion of the stamens, also bearded within below the upper lip to about the middle of the tube, 2–2·7 cm long; the tube 1·3–1·7 cm long, the narrow basal portion *ca* 3–4 mm long and more or less constricted at the apex, expanded and campanulate above; lobes 5, unequal, the free portions of the adaxial pair more or less deltoid, *ca* 1–2 mm long, the lateral ones ovate, 6–8·5 mm long, 5–6 mm wide, subacute, the abaxial lobe broadly oblong or ovate, 8–9 mm long, 7–8 mm wide, obtuse or rounded at the apex. *Stamens* included; filaments pubescent towards the base. *Ovary* densely glandular-puberulous and with a few longer simple hairs interspersed, oblong or cylindrical at the base, tapering above or somewhat abruptly contracted into the style, 5–6 mm long, 2-celled with 6–8 ovules in each cell; style more or less sparsely pubescent, 1·1–1·6 cm long. *Drupe* glandular-puberulous, often with a few simple hairs towards the apex, ovoid, *ca* 7 mm long, subacute, almost dry, 4-celled with 2–3 seeds in each cell. *Seeds* pale, 2–3 mm long.

GREGORY NORTH DISTRICT: Georgina R., Sep 1911, *Bick* 74; *ca* 40 km N of Springvale, Jan 1937, *Everist & L. S. Smith* 112. GREGORY SOUTH DISTRICT: *ca* 70 km W of Windorah, Jul 1936, *Blake* 12110A; Bransby, via Noccundra, in 1946, *Skerman*.

The species also occurs in New South Wales, South Australia, Northern Territory and Western Australia.

The type specimen, collected during Freeling's Expedition by G. Hawker from the desert adjoining the Blanche River near Lake Torrens, does not appear to be in the Melbourne Herbarium. However, there is in MEL a Howitt specimen from the type locality which was examined by Bentham and which conforms well to the original description. One can therefore be reasonably sure of the application of the name.

11. Eremophila goodwinii F. Muell. Rep. Babb. Exped. 17 (1858). Type: Mt. Murchison, *Dallachy* (holotype, MEL).

Bontia goodwinii (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila goodwinii.*

A bushy shrub, 1–1·5 m high. *Branchlets* shortly glandular-pubescent; the ultimate ones drying almost blackish, towards the tips viscid and ribbed by the decurrent leaf-bases, 0·5–1·5 mm diam., moderately to densely leafy, the internodes 0·1–2 mm long; the older ones drying brownish, rounded, up to 3 mm diam. *Leaves* alternate, the young ones shortly and sparsely glandular-pubescent or at length subglabrous, viscid, green, drying dark brown, the upper ones infolded or channelled above, at length flat, linear to linear-lanceolate, (1–)2–5(–6) cm long, (1–)2–5(–6) mm wide, scarcely narrowed towards the base, acute or subacute and slightly recurved at the apex, margin subentire or denticulate; midrib finely channelled above, elevated beneath; lateral veins manifest beneath on older leaves. *Flowers* solitary or paired, axillary; pedicels hirsute with spreading hairs (1–2 mm long) and with shorter glandular hairs interspersed, ascending or somewhat sigmoid, 1–1·8 cm long, slightly longer than or about as long as the calyx. *Calyx* divided almost to the base into 5 unequal, imbricate segments; segments glandular-pubescent on both surfaces except on the lower portion of the inner, also sparsely hirsute on the outer surface with long simple spreading hairs, more or less viscid, the adaxial outer one ovate-lanceolate, 0·9–1·5 cm long, 3·5–7 mm wide, the two outer abaxial ones lanceolate, 0·8–1·4 cm long, 1·5–4 mm wide, the inner lateral ones narrowly lanceolate, 0·7–1·3 cm long, 1·5–3 mm wide, all acute or acuminate, scarcely enlarged after flowering and at length more or less scarious. *Corolla* bluish-purple, pubescent outside except towards the base, very densely bearded within below the upper lip to about the middle of the tube and less densely so below the lower lip to the insertion of the stamens, 1·7–2·4 cm long; the tube 1·1–1·3 cm long, cylindrical at the base for 3–4 mm and more or less constricted above the ovary, expanded and campanulate above; lobes 5, unequal, the free portions of the adaxial ones rounded, 1·5–2 mm long, the lateral ones oblong, 0·6–0·8 cm long, 3–3·5 mm wide, obtusely pointed or shortly acuminate, the abaxial one oblong or obovate-oblong, 0·7–0·9 cm long, 4–6 mm wide, obtuse or rounded. *Stamens* included; filaments more or less pubescent. *Ovary* villous, ovoid, *ca* 4 mm long, 2-celled with 4 ovules in each cell; style pubescent, 0·9–1·1 cm long. *Drupe* globose or very broadly ovoid, *ca* 8–9 mm long, hirsute with spreading hairs, almost dry, 4-celled with 2 seeds in each cell. *Seeds* pale, 2–3 mm long.

WARREGO DISTRICT: near Cunnamulla, Apr 1941, *C. T. White* 11500.

The species also occurs in New South Wales, South Australia and Northern Territory.

Although the corolla is very similar in shape and colour to that of *E. gilesii,* the calyx is thinner in texture and much more imbricate, while the type of indumentum is quite different. See also the remarks under *E. gilesii.*

12. Eremophila elderi F. Muell. Fragm. 8:228 (1874). Type: between Rawlinson's R. & Mt. Barrow, *Giles* (holotype, loc.?).

Bontia elderi (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila elderi.*

A low shrub, about 0·5–1·0 m high. *Branchlets* densely clothed with spreading glandular and simple hairs of different lengths the longer hairs attaining 1·5 mm in length, rather prominently marked by the decurrent and persisent leaf-bases, drying brownish; the ultimate ones shortly ribbed, 1–2·5 mm diam., rather densely leafy, the internodes 0·1–0·5 cm long; the older ones up to 4 mm diam. *Leaves* alternate, with the indumentum of the branchlets, dull green, drying brownish, at length reflexed, more or less concave above when young, becoming flat, lanceolate, (2–)3–5(–6) cm long, (3–)5–8(–10) mm wide (or more in Central Australian specimens), narrowed towards the broad base, the apex subacute, margin entire or denticulate towards the leaf-apex, often incurved in dried specimens; midrib channelled above, elevated beneath; lateral nerves at length manifest on both surfaces. *Flowers* solitary or frequently paired, axillary; pedicels clothed with an indumentum similar to that of the branchlets, spreading and somewhat sigmoid, 1–1·5 cm long (or up to twice that length in Central Australian specimens), slightly shorter or longer than the calyx. *Calyx* divided to the base into 5 unequal, imbricate segments; segments outside and in the upper third within clothed with an indumentum similar to that of the branchlets, becoming glabrous towards the base on the inner surface, the adaxial one broadly lanceolate, 1·2–1·5 cm long, 3–6 mm wide, the abaxial outer ones 1–1·4 cm long, 2·5–4·5 mm wide, the inner lateral ones narrowly lanceolate, 0·8–1·4 cm long, 1·5–3 mm wide, all acute or acuminate, scarcely enlarged after flowering and at length more or less scarious. *Corolla* colour unknown, glandular-pubescent outside, within bearded below the upper lip to about the middle of the tube and less densely so below the abaxial lobe in the lower ⅔ of the tube, 2–2·8 cm long; the tube 1·4–1·8 cm long, narrowly cylindrical at the base for 4–5 mm and slightly constricted above the ovary, expanded and campanulate above; lobes 5, unequal, the free portions of the adaxial pair rounded, 1–2 mm long, the lateral ones ovate to oblong, 6–9 mm long, 4–6 mm wide, the abaxial lobe obovate-rhomboid, 7–10 mm long, 5–7 mm wide, all obtuse or rounded at the apex. *Stamens* included; filaments glabrous, inserted higher up the tube than in most species. *Ovary* oblong, *ca* 3 mm long, more or less delicately pubescent towards the apex, 2-celled with 4 ovules in each cell; style pubescent, 1–2 cm long. *Drupe* hirsute with long simple or glandular (?) hairs, broadly ovoid, 1·1–1·3 cm long, obtuse or rounded at the apex, almost dry, 4-celled with 2 seeds in each cell. *Seeds* white, *ca* 2·5 mm long.

GREGORY NORTH DISTRICT: Chatsworth Station, S of Selwyn, *Hunt.* MITCHELL DISTRICT: Blacks Palace, Marston, *ca* 120 km ENE of Blackall, Aug 1939, *Everist.*

The species is also found in the Northern Territory and Western Australia.

E. elderi is closely related to *E. goodwinii,* but may be readily distinguished by the broader leaves and the indumentum of long hairs over the whole of the plant. It is difficult to decide whether all of the longer hairs are simple, since clear brownish resinous globules are present on most hairs although the globules appear at least in some cases, to have been derived from adjacent often shorter hairs. However, the discoid head is readily apparent on some of the longer hairs on the branchlets.

The type specimen, collected between Rawlinson's Range and Mt. Barrow by E. Giles, does not appear to be in the Melbourne herbarium. Kraenzlin indicated he had seen the type, which appears to have been taken to Berlin by Diels and which may have since been destroyed. This leaves therefore the protologue description and Mueller's plate on which to typify the species. The Queensland material differs from these in having somewhat narrower leaves and shorter pedicels, although the flowers are characteristically paired. *Jensen* 225 from Hart's Range, NE of Alice Springs (BRI), has broader leaves and longer pedicels than the Queensland specimens but these are still respectively narrower and shorter than those in Mueller's plate. The specimen from Ilpilla Gorge, Northern Territory in MEL, has the very long pedicels although the leaves are scarcely broader than those of the Queensland specimens. In view of these variations, there can be little doubt that *E. elderi* is the correct name for these Queensland plants.

Mueller described the drupe as small and glabrous, although the ovary was described as glabrous below. Kraenzlin, who saw the type, described the fruit as ovate and obtuse but made no mention of the indumentum. In the specimens examined, the ovary is pubescent towards the apex as figured by Mueller and inferred in the protologue description. However, the fruit becomes hirsute or pilose throughout except for a band less than 2·5 mm wide around the base. As Mueller gave the length of the drupe as 3 lines, it seems probable that he based the description on very immature fruit.

13. **Eremophila longifolia** (R. Br.) F. Muell. Rep. Babb. Exped. 17 (1858). Based on *Stenochilus longifolius.*

Stenochilus longifolius R. Br. Prod. 517 (1810). Type: Southern Australia, *Brown* (holotype, BM, not seen).

Stenochilus salicinus Benth. in Mitch. Trop. Aust. 251 (1848). Type: Camp 40, Upper Warrego R., Jul 1846, *Mitchell* (holotype, K, not seen).

Stenochilus pubiflorus Benth. in Mitch. Trop. Aust. 273 (1848). Type: Belyando R., Aug 1846, *Mitchell* (holotype, K?; isotype, MEL).

Bontia longifolia (R. Br.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Stenochilus longifolius.*

Eremophila salicina (Benth.) Domin, Biblioth. Bot. 89:1166 (1929). Based on *Stenochilus salicinus.*

A shrub or small tree of 1–4(–6) m with more or less drooping foliage and branchlets; bark dark grey, rough and tessellated. *Branchlets* sparsely to densely, greyish or yellowish pubescent with short simple appressed hairs, or rarely hirsute with longer and more spreading hairs or when the indumentum is sparse the simple hairs often interspersed with minute glandular ones, glandular-tuberculate; the ultimate ones prominently ribbed by the decurrent leaf-bases, up to 1·5 mm diam., the internodes 0·1–2 cm long; the lower ones drying drab or brownish, roughened by the persistent leaf-bases, up to 6 mm diam. *Leaves* alternate, the youngest more or less hoary or yellowish from a close appressed pubescence, soon or at length more or less glabrous, dull green, or sometimes glaucous or greyish, drying greenish or dark brown, linear to linear-lanceolate, very rarely lanceolate, (3–)5–12(–20) cm long, (1·25–)2–7(–10) mm wide, narrowed into a petiole-like base *ca* 1–7 mm long, acute and with a hooked or recurved point at the apex; midrib narrowly channelled above or becoming elevated, elevated beneath; lateral veins and lax reticulations often at length visible above, the leaf often rugulose between them. *Flowers* 1–3(–4) in each leaf-axil; pedicels more or less pubescent, somtimes with minute glandular hairs towards the apex or at length glabrous, slightly curved, 4–9 mm long, longer than or less frequently as long as the calyx. *Calyx* divided into 5 subequal, slightly imbricate segments, which may be almost valvate at anthesis; segments more or less pubescent or glandular-puberulous on the back except towards the margins in the lower half where frequently densely clothed with somewhat longer spreading hairs, often glandular-pubescent above the middle within, 2–8 mm long, 1–4 mm wide, ovate or deltoid to lanceolate, shortly or long acuminate, the tip acute or subacute, not or scarcely enlarged and remaining herbaceous. *Corolla* pinkish to reddish-brown, spotted inside, coarsely pubescent on the outer surface, sparsely glandular-pubescent within, 1·3–3 cm long; the tube 1–2 cm long, swollen at the base for 3–6 mm, then contracted, finally expanded and more or less obliquely campanulate, curved; lobes 5, unequal, the adaxial pair with free portions oblong-ovate, *ca* 2–6 mm long, 2–5 mm wide, the lateral ones very broadly ovate, 3–7 mm long, 2·5–6 mm wide, the abaxial lobe more or less oblong, 0·4–1·2 cm long, 2–6·5 mm wide, all obtuse or the abaxial one notched and recurved. *Stamens* exserted; filaments sparsely glandular-puberulous or glabrous. *Ovary* glabrous, ovoid, 2–4 mm long, 2-celled with 4 ovules in each cell; style glabrous, 1–3 cm long. *Drupe* glabrous, ovoid or oblong to sub-globular, 0·5–1·1 cm long, obtuse or rounded at the apex, succulent, at length blackish or brown, 4-celled with 1–2 seeds in each cell. *Seeds* whitish, 2–4 mm long, narrowly oblong.

COOK DISTRICT: Walsh R., May 1891, *Barclay Miller;* Rutland Plains, near mouth of Mitchell R., in 1945, *Whitehouse.* BURKE DISTRICT: Between Camooweal and Urandangie, in 1890, *Burton;* Flinders R., Aug 1916, *C. T. White;* Hughenden, Oct 1935, *Blake* 9990. GREGORY NORTH DISTRICT: Burke R., Boulia, Jun 1896, *F. M. Bailey; ca* 65 km NW of Winton, May 1936, *Everist & C. T. White* 143. MITCHELL DISTRICT: Torrens Creek, Mar 1933, *C. T. White* 8706; Barcaldine, Apr 1919, *C. T. White;* Duneira, *ca* 20 km SE of Blackall, Jul 1939, *Everist* 1856. SOUTH KENNEDY DISTRICT: Belyando R., Aug 1846, *Mitchell* (MEL); Suttor R., *Bowman* (MEL). LEICHHARDT DISTRICT: Minerva, N of Springsure, Jul 1934, *Blake* 6967; Wandoan, Nov 1930, *Hubbard* 5007. PORT CURTIS DISTRICT: Torsdale, via Calliope, *J. Smith.* GREGORY SOUTH DISTRICT: Thylungra, *ca* 130 km NW of Quilpie, Aug 1928, *Francis.* WARREGO DISTRICT: Charleville, *F. M. Bailey;* Goonamurra near Eulo, Sep 1938, *Everist* 1667. MARANOA DISTRICT: Bungeworgorai near Roma, Oct 1933, *C. T. White* 9527. DARLING DOWNS DISTRICT: Chinchilla, Apr 1913, *Beasley* 1; Kindon Stn., *ca* 85 km NNE of Goondiwindi, Dec 1938, *L. S. Smith* 619. BURNETT DISTRICT: Kingaroy, Oct 1940, *Kerr.*

The species also occurs in New South Wales, Victoria, South Australia, Northern Territory and Western Australia.

The size of the flowers, the size and shape of the fruit, the degree of persistence and even type of indumentum all vary rather considerably as might be expected in a species with such a wide distribution. Within the northern limits of the range in Queensland, there is a form with smaller calyx lobes and flowers, glaucous leaves, and a dense close persistent indumentum (represented by two specimens of Darley from Erinagh (BRI)) which at first sight looks quite distinct. However, numerous intermediate specimens make it very doubtful that this form is worthy of separation. Francis's specimen from Thylungra is more robust than normal and has the calyx lobes densely woolly. Burton's specimen from between Camooweal and Urandangie has much shorter and broader leaves than normal, while the calyx and fruits are very suggestive of *Myoporum.* The shape and size of the calyx lobes vary greatly but all intermediates between the extremes are found.

As Brown's original description is inadequate and his type specimen is at BM, it has been necessary to rely on specimens seen by Bentham to check the identity of the species.

The corolla of *E. longifolia,* although suggestive of that of section *Stenochilus,* never has the abaxial lobe so deeply separated as in that section, nor are the adaxial lobes acute.

14. Eremophila polyclada (F. Muell.) F. Muell. Rep. Babb. Exped. 17 (1858). Based on *Pholidia polyclada.*

Pholidia polyclada F. Muell. Hook. J. Bot. 8:201 (1856). Type: Junction of the Darling with the Murray River, Dec 1853, *F. Mueller* (holotype, MEL).

Bontia polyclada (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Pholidia polyclada.*

A very dense and intricately branched shrub 1–2 m in height and diameter, the branches often downcurved towards the tip. *Branchlets* glabrous or glandular-puberulous at the tips, divaricate, drying dark brown to almost blackish, rarely paler; the ultimate ones drying rather rigid and almost spinescent at times, slightly ribbed in the upper part by the decurrent leaf-bases, otherwise rounded, up to 2 mm diam., the internodes 0·1–1·6 cm long; the older ones smooth or rugulose, up to 4 mm diam. *Leaves* alternate, glabrous or the very immature ones more or less glandular-puberulous, dull green, drying blackish or rarely somewhat greenish, flat or concave above, linear, (0·8–)2–6(–10) cm long, (0·5–)1–2·5 (–4) mm wide, gradually narrowed towards the base, the apex acute or rarely obtuse and sometimes tending to be recurved, margin entire and incurved towards the base of the leaf; nervature obscure or the midrib manifest. *Flowers* solitary or rarely paired, axillary; pedicels glabrous, viscid, often rather stout and compressed or sometimes more elongated and slender, 5-ribbed towards the apex, slightly curved, 0·5–1·5 cm long, longer than or about as long as the calyx. *Calyx* divided to near the base into 5 subequal broadly imbricate segments; segments glabrous, viscid, broadly ovate, 4–6 mm long, 3–5 mm broad, acuminate and spreading or recurved at the apex, thick, strongly keeled, the margins membranous and delicately fimbriate, a little enlarged after flowering, remaining herbaceous. *Corolla* white with dull greenish or brownish spots on the abaxial and base of the lateral lobes and within the tube below, glabrous outside, within bearded on the abaxial lobe (the hairs there yellowish) and down the tube to the insertion of the stamens, 2–2·8 cm long; tube expanded gradually from the base and almost campanulate 1·2–1·7 cm long; lobes 5, unequal, the free portion of the adaxial pair broadly oblong to subrotund, 2–6 mm long, 5–6 mm wide, the lateral ones broadly oblong or obovate, 7–9 mm long and wide, the abaxial lobe broader than long, 7–10 mm long, 1·2–1·6 cm wide, all more or less obtuse to rounded or the abaxial one usually emarginate or almost bilobed, the margins of the lobes sometimes finely undulate and more or less fimbriate. *Stamens* included; filaments densely bearded at base on the side nearest the ovary, often inserted only 1–2 mm from the base of the tube. *Ovary* glabrous, ovoid-conical, *ca* 4 mm long, acute, 2-celled with 4–6 ovules in each cell; style glabrous, 1·3–1·8 cm long. *Drupe* glabrous, narrowly ellipsoid or oblong, 1·2–1·5 cm long, acute or beaked, succulent, 4-celled with 2–3 seeds in each cell; ultimately the putamen of the dried fruit shortly opening from the apex in 2 or 4 valves and enclosed by the remains of the loose papery epidermis. *Seeds* pale, narrowly oblong, *ca* 3 mm long.

BURKE DISTRICT: N of Hughenden, Aug 1936, *Blake* 12665. GREGORY NORTH DISTRICT: Diamantina R., Apr 1892, *Bancroft;* Georgina R., Herbert Downs, Sep 1910, *Bick.* MITCHELL DISTRICT: Longreach, Aug 1918, *Miss J. Bancroft;* between Blackall and Glen Stuart, May 1936, *Everist & C. T. White* 64; Linden, *ca* 40 km W of Blackall, Aug 1961, *Purcell.* SOUTH KENNEDY DISTRICT: Laglan, *ca* 100 km WNW of Clermont, Mar 1958, *L. S. Smith*

10310. WARREGO DISTRICT: Maxvale, Dec 1935, *Everist* 1444; Charleville, Sep 1945, *Clemens;* Wombin, *ca* 80 km SW of Quilpie, Oct 1948, *Everist* 3569; Eulo, Mar 1941, *C. T. White* 11497. GREGORY SOUTH DISTRICT: Warrabin, W of Quilpie, Apr 1934, *Blake* 5496.

The species also occurs in New South Wales, Victoria and South Australia.

The main flowering period appears to be in August, September and October with a second peak in March, April and May, although flowers have been collected in almost every month of the year.

E. polyclada is readily distinguished from all other Queensland species in the field by its habit of growth. It normally occurs on low lying land which becomes flooded during wet seasons. It has been seen in open grassland and sparse Gidgee (*Acacia cambagei*). The combination of habit and habitat has doubtless suggested the local name "Desert Lignum" which is sometimes used for it. Although it is so different in habit from *E. bignoniiflora,* the flowers of both are very similar in structure but are paler in colour in *E. polyclada.* These two species form a natural group.

Queensland material matches the type specimen well, although the latter has dried a slightly paler colour than is usual for the species.

As noted in the introduction, Buckland's (or Barkland's) specimen of *E. polyclada* from the Thompson R. labelled by Mueller as *E. divaricata* is probably the basis on which *Pholidia divaricata* was recorded by Bailey (Qd Fl. 1157) for Queensland. *E. divaricata* does not occur in Queensland.

15. Eremophila bignoniiflora (Benth.) F. Muell. Rep. Babb. Exped. 17 (1858). Based on *Stenochilus bignoniiflorus.*

Stenochilus bignoniiflorus "bignoniaeflorus" Benth. in Mitch. Trop. Aust. 386 (1848). Type: between the Balonne and Mooni Rivers, Nov 1846, *Mitchell* (holotype, loc.?; isotype, MEL).

Bontia bignoniiflora (Benth.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Stenochilus bignoniiflorus.*

Pholidia bignoniiflora (Benth.) Kraenzl. Feddes Repert. Beih. 54:47 (1929). Based on *Stenochilus bignoniiflorus.*

A small tree 3–7 m high, with dense rounded crown and pendulous branchlets and foliage; bark dark grey, rough, fissured or somewhat tessellated. *Branchlets* glabrous, often glandular-tuberculate, rarely more or less glandular-puberulous at the tips; the ultimate ones viscid, drying blackish, up to 2 mm diam., ribbed by the decurrent leaf-bases, the internodes 0·1–1·4 cm long; the older ones drying light brown to red-brown, up to 5 mm diam., slightly roughened by the persistent leaf-bases. *Leaves* alternate, the immature ones more or less glandular-puberulous, soon glabrous, dull green, drying light greenish-brown to bluish or blackish, blackish-punctate under the lens, linear-lanceolate to lanceolate or slightly falcate, (3–)5–12(–18) cm long, (2–)3–10(–14) mm wide, narrowed into a petiole-like base *ca* 2–10 mm long, the apex acute and often slightly recurved, the margin entire or distantly glandular-denticulate near the apex of the leaf or in the upper half, incurved towards the base of the leaf; midrib slightly elevated on both surfaces; lateral nerves at length manifest above in older leaves, and sometimes a few lax reticulations visible. *Flowers* solitary or rarely paired, axillary; the pedicels glabrous, viscid, 5-ribbed towards the apex, curved, 0·5–1·5 cm long, longer than or about as long as the calyx. *Calyx* divided to near the base into 5 subequal, broadly imbricate segments; segments glabrous, viscid, broadly ovate, 4–9 mm long, 3–6 mm wide, acuminate, strongly keeled and thick except for the membranous, fimbriate margins, scarcely enlarged and remaining herbaceous. *Corolla* cream with purplish spots or flecks on the abaxial lobe and within the throat, glabrous outside, bearded within on the abaxial lobe and down the tube below as well as around the lower portion of the tube above the insertion of the stamens, 2·2–3 cm long; the tube often more or less expanded from the base, broad and somewhat campanulate above, *ca* 1·3–2 cm long; the lobes unequal, 5, the free portions of the adaxial pair very broadly oblong, 3–4 mm long, 5–7 mm wide, the lateral ones broadly obovate, 7–8 mm long and wide, the abaxial lobe broader than long, 9–11 mm long, 1·6–1·8 cm wide, all rounded or obtuse except the latter which is emarginate or almost bifid and often more or less irregularly and shallowly lacerate. *Stamens* included; filaments densely bearded at the base on the side nearest the ovary, often attached only 1–2 mm from the base of the corolla tube. *Ovary* glabrous, ovoid-conical, 4–6 mm long, acute, 2-celled with 6 ovules in each cell; style glabrous, 1·4–2 cm long. *Drupe* ovoid, 1·5–2 cm long, more or less acuminate, succulent, 4-celled with 2–3 seeds in each cell. *Seeds* whitish, 4–5 mm long.

BURKE DISTRICT: Normanton, Mar 1924, *Moore;* Cubbaroo Station, near Cloncurry, Sep 1962, *Ebersohn* E251; Hughenden, Jun 1934, *Blake* 6170. NORTH KENNEDY DISTRICT: Home Hill district, Aug 1964, *Wyatt.* GREGORY NORTH DISTRICT: Woodstock, W of Winton, Jun 1934, *Blake* 6508; bedside Lake Idamea, Glenormiston, Jan 1935, *Boyle,* Aug 1949, *Colliver;* Boulia, Jun 1934, *Blake* 6461. MITCHELL DISTRICT: Muttaburra, Mar 1919, *C. T. White;* Blackall, Sep 1937, *Brass & White* 32; Longreach, Aug 1918, *Miss J. Bancroft.* SOUTH KENNEDY DISTRICT: Laglan, *ca* 105 km WNW of Clermont, Mar 1958, *L. S. Smith* 10352. LEICHHARDT DISTRICT: Bingebang, Mackenzie R., 80 km NNW of Dingo, Aug 1941, *Francis;* Manly Homestead, Jul 1962, *Story & Yapp* 161; 15 km SSW of Comet Township, Sep 1961, *Lazarides & Story* 61. PORT CURTIS DISTRICT: Rockhampton, *O'Shannesy* (MEL), Sep 1909, *J. F. Bailey.* GREGORY SOUTH DISTRICT: Windorah, Sep 1910, *Rose;* Birdsville, *Francis.* WARREGO DISTRICT: Quilpie, May 1928, *C. T. White;* Thargomindah, Aug 1963, *Cockburn* 36; Caiwarro, via Eulo, Aug 1936, *Miss K. I. Morris.* MARANOA DISTRICT: between Balonne and Mooni Rivers, Nov 1846, *Mitchell* (MEL); Noondoo, Dec 1934, *Everist* 745.

The species also occurs in New South Wales, Victoria, South Australia, Northern Territory and Western Australia.

The main flowering period appears to be in the spring although judging from collections, plants may flower at almost any time of the year following adequate rains. Local names applied to this species include White Tree Fuchsia (Mackenzie River), River Angee (Winton, Boulia), Creek Wilga (Blackall), Swamp Sandalwood and Eurah (Noondoo).

Like its closest relative *E. polyclada, E. bignoniiflora* usually occurs adjacent to watercourses, waterholes, etc., although it generally occupies the banks, or grows on slightly more elevated ground than that species. The tree habit, the larger leaves, and the creamy flowers readily distinguish it.

16. Eremophila tetraptera C. T. White, Proc. Roy. Soc. Qd 55:73, pl. 3 (1944). Type: Old Cork and between Diamantina Gates and Springvale, Feb 1942, *Walker* (holotype, BRI).

A shrub or small tree, 1–3 m high. *Branchlets* more or less minutely glandular-puberulous at the tips, soon glabrous, sometimes marked by the rather dense and prominent persistent leaf-bases; the ultimate ones rather stout, viscid at the tip, 1–3 mm diam., densely leafy, the internodes mostly less than 1 mm in length; the older ones drying pale brown or somewhat greyish, sometimes lustrous, round, up to 7 mm diam. *Leaves* alternate, often clustered on short lateral branchlets, the immature ones glandular-puberulous but soon glabrous, dull green, flat, drying somewhat greenish or brownish and rugulose, linear-lanceolate, (1·5–)2·5–5(–6) cm long, (2–)3–5(–7) mm wide, narrowed into a petiole-like base up to *ca* 5 mm long, the apex obtuse or subacute or minutely apiculate, the margin entire; midrib obscure to finely channelled above, elevated beneath at least towards the base. *Flowers* solitary, axillary; pedicels below the buds glandular-puberulous, soon glabrous, rather slender, sigmoid, 1–1·8 cm long, longer than the calyx. *Calyx* divided almost to the base into 5 subequal or slightly unequal imbricate segments; segments glabrous, lanceolate, 0·7–1 cm long, 2–2·5 mm wide, long-acuminate, subacute at the tip, ribbed down the centre, the lower margins membranous, scarcely enlarged after anthesis and remaining herbaceous. *Corolla* red, paler within and more or less reddish-brown spotted, glabrous outside, sparsely glandular-puberulous within, 2–2·7 cm long; the tube 1·3–1·7 cm long, more or less cylindrical at the base for 2–4 mm then expanded, more or less obliquely campanulate above, curved; lobes 5, unequal, at length recurved, the free portions of the adaxial pair subrotund, 4–5 mm long and wide, the lateral ones broadly ovate or ovate-oblong, 0·6–0·8 cm long and wide, the abaxial lobe broadly oblong 0·9–1·1 cm long, 0·7–0·8 cm wide, all rounded or obtuse or some or all of the 3 lower lobes emarginate. *Stamens* at length exserted; filaments sparsely glandular-puberulous. *Ovary* glabrous, narrowly ovoid, *ca* 4–5 mm long, 4-angled or 4-ribbed, 2-celled with 2–4 ovules in each cell; style glabrous, 1·3–2·3 cm long. *Drupe,* including the 4 longitudinal *ca* 5 mm wide wings, broadly ovate or oval in outline, 1–1·2 cm long, almost dry, 4-celled (or sometimes only 2 by abortion) with 1–2 seeds in each cell, the wings supported by somewhat corky tissue and the endocarp rather soft and thin. *Seeds* whitish, *ca* 3–5 mm long.

GREGORY NORTH DISTRICT: Cork and Diamatina Lakes, Oct 1941, *Walker;* Diamantina Lakes, Jun 1942, *McCullagh;* Narcissus via Winton, Nov 1958, *Doyle* 2.

Flowering specimens have been collected in June and July and fruiting specimens in July and October.

E. pterocarpa W. V. Fitzg. is the only other species described as having winged fruits. It differs from *E. tetraptera* in having a hairy ovary, style and corolla and is known at present from Western Australia only. The corolla of *E. tetraptera* is similar in shape to that of *E. longifolia* but in the deeper incisions separating the lower lobe, this species approaches section *Stenochilus.*

Section **Stenochilus** (R. Br.) F. Muell. Rep. Babb. Exped. 16 (1858). Based on *Stenochilus* R. Br. Lectotype species: *Eremophila glabra* (R. Br.) Ostenf.

Stenochilus R. Br. Prod. 517 (1810). Lectotype species: *Stenochilus glaber* R. Br.

Stenochilus R. Br. sect. *Euchilus* DC. Prod. 11:714 (1847), *nom. illeg.* Lectotype species: *Stenochilus glaber* R. Br.

Eremophila R. Br. sect. *Scariosepala* F. Muell. *loc. cit.* Lectotype species: *Eremophila alternifolia* R. Br.

Leaves alternate, indumentum of various types of hairs. Calyx segments in the bud imbricate below, remaining imbricate at anthesis, acuminate, acute or obtuse or rounded, remaining herbaceous or rarely becoming scarious, little enlarged after flowering. Corolla cut to about the middle, or if only about $\frac{3}{8}$, then at least two of the upper lobes with a fine acute tip, the upper lip 4-lobed, the lower lip 1-lobed; lobes of the upper lip subequal or the two inner slightly shorter, the abaxial lobe much longer than the remainder and at length spreading or recurved. Stamens exserted in the Queensland species, rarely included. Fruit succulent, from slightly shorter than to much longer than the calyx, the endocarp rather stout.

17. Eremophila maculata (Ker) F. Muell. Rep. Babb. Exped. 16 (1858). Based on *Stenochilus maculatus.*

Stenochilus maculatus Ker, Bot. Reg. 8:t.647 (1822). Type: fig. 647, Bot. Reg. (1822).

Stenochilus racemosus Endl. Ann. Wien. Mus. 2:202 (*ca* 1839). Type: ?

Stenochilus curvipes Benth. in Mitch. Trop. Aust. 221 (1848). Type: Headwaters of Warrego R., Jul 1846, *Mitchell* (holotype, K; not seen).

Eremophila racemosa (Endl.) F. Muell. Proc. Roy. Loc. Tas. 3:297 (1859). Based on *Stenochilus racemosus.*

Bontia maculata (Ker) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Stenochilus maculatus.*

Pholidia maculata (Ker) Baill. ex Wettst. in Engl. & Prantl, Naturl. Pflanzenfam. 4(3b):359 (1895). Based on *Stenochilus maculatus.*

A low compact shrub, 0·5–1·5 m high, with ascending or oblique branches. *Branchlets* more or less softly pubescent or tomentose, the hairs spreading, sometimes pubescent above the leaf-axils only or even glabrous; the ultimate ones drying pale brown or whitish due to the indumentum, ribbed towards the apex by the decurrent leaf-bases, otherwise rounded, 0·5–2 mm diam., the internodes 0·25–8 mm long; the older ones pale brown or smoky coloured, up to 7 mm thick. *Leaves* alternate, glabrous or the immature ones glandular-puberulous, dull green to subglaucous, drying somewhat greenish or brownish, oblanceolate to elliptic or rarely linear-lanceolate, (1–)1·5–3·5(–5) cm long, (1·5–)2·5–7(–9) mm wide, narrowed to a slender petiole-like base *ca* 1–6 mm long, the apex acute or more or less obtuse, the margin entire, very narrowly recurved or thickened beneath; midrib finely channelled above, elevated beneath; lateral nerves visible on some of the older leaves. *Flowers* solitary, axillary; pedicels glabrous, sigmoid, rather slender, 1–2·5 cm long, longer than the calyx. *Calyx* divided almost to the base into 5 subequal, broadly imbricate segments; segments glabrous outside, appressedly pubescent within, broadly ovate, 4–8 mm long, 2·5–4 mm wide, acuminate, the tip acute, scarcely or not enlarged after anthesis and remaining herbaceous. *Corolla* pink, crimson or red outside, paler within or creamy and with purplish, brownish or reddish spots, glabrous outside, more or less bearded on the inside of the upper lip below the central lobes and within the lower part of the tube around the insertion of the stamens, rarely almost glabrous within, 2·2–3·5 cm long; tube 1–1·8 cm long, swollen at the base for 3–7 mm, constricted above the ovary, slightly curved and gradually expanded above; lobes 5, unequal, the free portions of the adaxial pair obliquely ovate, 2·5–5 mm long, the lateral lobes ovate-oblong, 4–7·5 mm long, the abaxial lobe oblong-linear, 1·2–1·9 cm long and 3·5–6·5 mm wide, the four lobes of the upper lip more or less acuminate with the tip acute, the abaxial lobe obtuse or shortly acuminate and spreading or at length reflexed. Stamens exserted; filaments glabrous. *Ovary* glabrous, ovoid, 5–7 mm long, at the apex gradually tapering into the style, 2-celled with 4–6 ovules in each cell; style glabrous, 1·6–2·7 cm long. *Drupe* glabrous, broadly ovoid, 1·5–2·2 cm long, 1–1·7 cm wide, much exceeding the calyx, beaked, slightly compressed, succulent, 4-celled with mostly 2 seeds in each cell. *Seeds* pale, 5–7 mm long, 1·5 mm diam.

COOK DISTRICT: Spring Creek Station via Mt. Surprise, Jun 1937, *Priest* in N.Q. Nat. Cl. No. 3462. BURKE DISTRICT: Burketown, Apr 1887, *Hann;* between Turnoff Lagoon and Woologorang, May 1940, *Jensen* 6. NORTH KENNEDY DISTRICT: Townsville, *Pollock*. GREGORY NORTH DISTRICT: *ca* 55 km S of Bedourie, Jul 1936, *Blake* 12294. MITCHELL DISTRICT: Muttaburra, Apr 1919, *C. T. White;* Corona, between Longreach and Winton, May 1936, *Everist & C. T. White* 127; a few miles N of Blackall, Oct 1940, *L. S. Smith & Everist* 887; Bilbah Downs, near Emmett, Jul 1934, *Blake* 6689. LEICHHARDT DISTRICT: Springsure, *Cameron;* Emerald, Aug 1930, *Carey*. GREGORY SOUTH DISTRICT: Wilson River, *Weale*. WARREGO DISTRICT: Quilpie, May 1928, *C. T. White;* Caiwarro, Eulo, Aug 1936, *Miss K. I. Morris* 20; on stock route between Morven and Augathella, Sep 1937, *Brass & C. T. White* 19; slopes of Grey Range, W of Thargomindah, Jun 1936, *Blake* 11798. MARANOA DISTRICT: Noondoo Station, Dec 1934, *Everist* 834; Narine Station SE of Dirranbandi, Mar 1936, *Blake* 10712. DARLING DOWNS DISTRICT: Inglewood, Nov 1922, *C. J. Smith* 19; Goondiwindi, Aug 1930, *Dixon*.

The species also occurs in New South Wales, Victoria, South Australia, Northern Territory and Western Australia.

Eremophila maculata forma **flava** (F. M. Bail.) L. S. Smith comb. nov.

> *Eremophila maculata* (Ker) F. Muell. var. *flava* F. M. Bail. Qd Ag. J. 25:290 (1910). Type: Georgina R., Sep–Oct 1910, *Bick* 76 (lectotype, BRI).

This form differs from the typical form of the species in having yellow or cream flowers.

GREGORY NORTH DISTRICT: Georgina River, Sep-Oct 1910, *Bick* 73, 76; Marion Downs, S of Boulia, Jul 1936, *Blake* 12352; Headingly, Urandangie, May 1944, *Moreton*. WARREGO DISTRICT: slopes of Grey Range, W of Thargomindah, Jun 1936, *Blake* 11798. MARANOA DISTRICT: *ca* 65 km W of Bollon, near Nebine R., Aug 1946, *Everist* 2611.

Since Ker's figure and description of *Stenochilus maculatus* have not been examined, it has been necessary to rely on de Candolle's and Bentham's descriptions, and specimens seen by Bentham to establish the identity of the species.*

It seems doubtful whether the yellow-flowered form is worthy of recognition as a variety in view of the great variations in the colour of the flowers of the normal form.

Hann 4 and *Jensen* 6 from Burke District, look rather different from the remainder of the specimens. They possess linear-lanceolate leaves, which are longer and narrower than is usual in the species. Hill's specimen 114 of *E. maculata* from the Northern Territory was cited as paratype of *E. macdonnellii* var. *macrocarpa* by Ewart and Davies in their flora of that area. However, the fruits of this specimen almost certainly suggested the varietal epithet. In their protologue description, "leaves about 3 cm" and "the fruit is much larger, measuring 1·5–2 cm" can apply only to *Hill* 114, since in the type of the variety (*Hill* 347) leaves do not exceed 2·6 cm (they are commonly 3 cm and over in *Hill* 114) and the fruits are all less than 1·5 cm long (they attain 2 cm in *Hill* 114).

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* The inclusion of *Stenochilus racemosus* and *S. curvipes* in synonomy above appears therefore to be based on Bentham (1870) and de Candolle (1847)—R.J.F.H.

This species is well known in Western Queensland by the vernacular name of Fuchsia Bush, and although recognized as being sometimes responsible for poisoning stock, is subject of much controversy as to whether or not it should be allowed to persist because of its usefulness in tiding sheep over drought periods.

18. Eremophila glabra (R. Br.) Ostenf. Dansk. Vidensk. Selsk. Biol. Medd. 3:119 (1921). Based on *Stenochilus glaber.*

Stenochilus glaber R.Br. Prod. 519 (1810). Type: Bay No. 3 [Fowler's Bay], Jan 1802, *Brown* (holotype, BM, not seen).

Stenochilus viscosus Graham, Edinb. Phil. J. 11:385 (1829). Type: ?

Stenochilus incanus Lindl. Bot. Reg. 25:70 (1839). Type: south-east Australia, *Mitchell* (holotype, CGE, not seen).

Stenochilus albicans Bartl. Pl. Preiss. 1:351 (1845). Type: Perth, *Preiss* 2303; Fremantle, *Preiss* 2304 (syntypes, loc.?).

Stenochilus subcanescens Bartl. Pl. Preiss, 1:351 (1845). Type: *Preiss* 2318 (holotype, loc.?).

Stenochilus ochroleucus A. Cunn. ex. DC. Prod. 11:715 (1847), *pro syn.*

Stenochilus maculatus Ker var. *ochroleucus* DC. *loc. cit.* Type: arid country on the Lachlan R., New South Wales, Jun 1817, *Cunningham* (holotype, G–DC, not seen).

Eremophila brownii F. Muell. Rep. Babb. Exped. 16 (1858) *nom. superf.* (*Stenochilus glaber* R. Br. *pro syn. incl.*).

Eremophila incana (Lindl.) F. Muell. Proc. Roy. Soc. Tas. 3:297 (1859). Based on *Stenochilus incanus.*

Eremophila grahamii F. Muell. Proc. Roy. Soc. Tas. 3:297 (1859) *nom. superf.* (*Stenochilus viscosus* Graham *pro syn. incl.*).

Eremophila albicans (Bartl.) F. Muell. Proc. Roy. Soc. Tas. 3:297 (1859). Based on *Stenochilus albicans.*

Bontia glabra (R. Br.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Stenochilus glaber.*

Pholidia brownii Baill. ex Wettst. in Engl. & Prantl, Naturl. Pflanzenfam. 4(3b):359 (1895). Based on *Eremophila brownii, nom. illeg.*

An erect bushy shrub, 0·5–1·5 m high. *Branchlets* shortly stellate-pubescent, soon or at length glabrous, drying brown to almost blackish; the ultimate ones more or less viscid, ribbed towards the tips by the decurrent leaf-bases, 0·5–1·5 mm diam., rather densely or moderately leafy, the internodes 0·1–1·3 cm long; the older ones rounded, up to 4 mm diam. *Leaves* alternate, the younger ones stellate-pubescent, soon or at length glabrous, bright green, viscid, drying brownish or the younger ones almost blackish, lanceolate to linear-lanceolate, more rarely almost elliptic, (1·5–)2–5(–6·5) cm long, (1·5–)2·5–6 (–8) mm wide, tapering towards a petiole-like base *ca* 1–7 mm long, acute or shortly acuminate at the apex, margin entire or rarely with a few obscure teeth towards the leaf apex; midrib slightly elevated or finely channelled above, elevated beneath, more strongly so towards the base of the leaf; lateral nerves few, at length manifest above. *Flowers* solitary, axillary; pedicels more or less stellate-pubescent, viscid, slightly curved, 4–9 mm long, shorter than or sometimes about as long as the calyx. *Calyx* divided almost to the base into 5 unequal imbricate segments; segments more or less stellate-pubescent outside and in the upper ⅓ within, the outer surface also sparsely clothed with minute glandular hairs, and the lower portion of the inner surface glandular-pubescent, more or less viscid, the three outer ones subequal or the adaxial segment slightly larger, ovate-lanceolate to lanceolate, 5–9 mm long, 2–3 mm wide, the two inner ones lanceolate, 4·5–7·5 mm long, 1·5–2 mm wide, all acute or acuminate, slightly enlarged after anthesis and remaining herbaceous or rarely becoming almost scarious. *Corolla* reddish, glabrescent to glandular-pubescent outside, more sparsely so within, 2·5–3 cm long; the tube *ca* 1–1·3 cm long, slightly swollen at the base for 2–5 mm, contracted slightly above the ovary, gradually expanded above and slightly curved; lobes 5, very unequal, the free portions of the upper pair narrowly deltoid, 1·5–3 mm long, more or less acute, the lateral lobes oblong or ovate-oblong, 3·5–5 mm long, *ca* 2·5 mm wide, more or less acute, the abaxial lobe linear, 1·2–1·5 cm long, 2·5–3 mm wide, obtuse, at length recurved or reflexed. *Stamens* long exserted; filaments very sparsely glandular-pubescent. *Ovary* glabrous, ovoid or oblong, *ca* 3–6 mm long, 2-celled with 4 ovules in each cell; style glabrous, 3–3·5 cm long. *Drupe* glabrous, ovoid, up to 1 cm long, often shortly beaked, succulent, not or shortly exceeding the calyx, 4-celled with 2 seeds in each cell. *Seeds* pale or whitish, *ca* 3–4 mm long, narrowly oblong.

MITCHELL DISTRICT: Lorne Peak, *ca* 80 km SSW of Blackall, Feb 1940, *Everist* 1992. WARREGO DISTRICT: Oakwood Station, N of Charleville, Apr 1932, *Francis;* Penaroo, Eulo, *Young;* Wittenburra Station, *ca* 60 km S of Eulo, Jan 1937, *Everist & L. S. Smith* 25; Gilruth Plains, E of Cunnamulla, May 1939, *Blake* 14039. MARANOA DISTRICT: between Shamrock Wells and Cunnamulla, May 1936, *Everist & C. T. White* 41. DARLING DOWNS DISTRICT: The Gums, Tara Line, Mar 1936, *Francis.*

The species also occurs in New South Wales, Victoria, South Australia and Western Australia.

As Brown's type is at the British Museum (Nat. Hist.), it has been necessary to rely on specimens seen by Bentham to place the species. It is readily recognized by the long lower lip of the corolla and the stellate indumentum.

Judging from a piece of *Ostenfeld* 1007 (MEL) collected at Kalgoorlie in October 1914, *Eremophila decipiens* Ostenf. appears only a variety of *E. glabra* with longer, sigmoid pedicels and corolla glabrous outside. Both Kraenzlin and Gardner give *E. decipiens* as a synonym of *E. maculata.* The sigmoid pedicels do suggest a relationship with that species, but the stellate indumentum and the fruit scarcely exceeding the calyx reveal the true affinity to be with *E. glabra.* Until *E. decipiens* is better known it seems best to follow J. M. Black (1929) and keep the species distinct. The leaves on Francis's specimen from the Gums are much smaller and narrower than is usual for the species and are somewhat suggestive in shape of those of *E. sturtii* or *E. mitchellii.* Whereas the leaves in the majority of Queensland specimens soon become glabrous, they remain more or less pubescent in Young's specimen from Penaroo.

19. Eremophila duttonii F. Muell. Rep. Babb. Exped. 16 (1858). Type: Elizabeth Ck., South Australia, *Babbage* (?) (? holotype, MEL).

Bontia duttonii (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila duttonii.*

Stenochilus duttonii (F. Muell.) Kraenzl. Feddes Repert. Beih. 54:120 (1929). Based on *Eremophila duttonii.*

A shrub or small tree 1·5–2(–3) m high. *Branchlets* more or less sparsely pubescent, sometimes glandular-tuberculate, roughened by the persistent leaf-bases; the ultimate ones drying somewhat reddish-brown to almost blackish, viscid at least towards the tips, rounded, 0·5–1·5 mm diam., densely leafy, the internodes up to 2 mm long; the older ones drying pale brown or greyish-brown, up to 5 mm diam. *Leaves* alternate, the immature ones more or less sparsely pubescent, soon glabrous (or the hairs more persistent in specimens from other States), dark green, drying brownish to almost blackish, punctate under the lens, more or less viscid, linear to narrowly lanceolate, (2–)2·5–4(–5·5) cm long, (1·5–)2–3·5(–5) mm wide, narrowed to a rather broad sessile base, tipped at the apex by an acute sometimes recurved point; margin entire; midrib finely channelled above, elevated beneath; lateral nerves visible in the older leaves. *Flowers* solitary, axillary; pedicels glabrous or more or less sparsely pubescent, spreading and sigmoid, somewhat compressed, 1·2–1·9 cm long, longer than the calyx. *Calyx* divided almost to the base into 5 unequal, much-imbricate segments; segments soon glabrous, viscid, the adaxial one largest, ovate to ovate-lanceolate, *ca* 1–1·2 cm long, 0·8–1·5 cm wide, the abaxial outer pair more or less elliptic to obovate, 1–1·2 cm long, 0·5–0·6 cm wide, the inner lateral segments elliptic to elliptic lanceolate, 0·9–1·1 cm long, *ca* 0·5 cm wide, all acuminate and acute at the tip, enlarged after anthesis, up to 1·8 cm long and remaining herbaceous or becoming more or less scarious, rather prominently nerved. *Corolla* yellowish on the abaxial surface, passing through orange to red on the adaxial surface, glabrous or sometimes hairy outside, bearded within below the adaxial lobes to near the insertion of the stamens otherwise glabrous or sparsely pubescent, 2·5–2·8 cm long; tube 1·5–1·7 cm long, slightly swollen or cylindrical below the constriction which is 5–7 mm above the base, gradually expanded or somewhat campanulate above; lobes 5, unequal, free portions of the upper pair 3–3·5 mm long, *ca* 2 mm wide, the lateral lobes oblong-ovate, 5–6 mm long, *ca* 3 mm wide, the abaxial lobe oblong, 7–8 mm long, 4–5 mm wide, grooved above, all acuminate and with a fine acute tip except for the abaxial one which is obtuse and at length reflexed. *Stamens* exserted; filaments glabrous. *Ovary* glabrous, ovoid, *ca* 5–6 mm long, tapering into the style at the apex, 2-celled with 2–4 ovules in each cell; style glabrous, 2·3–2·5 cm long. *Drupe* glabrous, ovoid, up to 0·9 cm long but then not mature, succulent, shorter than the calyx, 4-celled with 1–2 seeds in each cell. *Seeds* not seen mature.

GREGORY NORTH DISTRICT: *ca* 25 km N of Boulia, Jan 1937, *Everist & L. S. Smith* 133. GREGORY SOUTH DISTRICT: Orientos, Jun-Aug 1946, *Skerman*. WARREGO DISTRICT: Dynevor Downs, Jun 1936, *Blake* 11739.

The species also occurs in New South Wales, South Australia and the Northern Territory.

There is a rather fragmentary specimen in the Melbourne herbarium consisting of two calyces, a corolla and leaves, from the type locality, Elizabeth Creek, which was probably though not certainly collected by Babbage. The foliage of the South Australian specimens agrees fairly well with that of the Queensland ones, although the pedicels are usually more pubescent as are sometimes the leaves. Specimens from Broken Hill (BRI) have much larger calyces and are more pubescent than Queensland collections.

E. duttonii, in the lobing of the corolla, is intermediate between the sections *Amphichilus* and *Stenochilus*. The corolla is scarcely divided beyond $\frac{3}{8}$, although the sharply pointed lobes of the upper lip indicate a closer relationship to section *Stenochilus* than to section *Amphichilus*.

Section **Pholidia** (R. Br.) F. Muell. Rep. Babb. Exped. 18 (1858). Based on *Pholidia* R. Br. Type species: *Eremophila scoparia* (R. Br.) F. Muell.

Pholidia R. Br. Prod. 517 (1810). Type species: *Pholidia scoparia* R. Br.

Pholidia R. Br. sect. *Scopariae* Kraenzl. Feddes Repert. Beih. 54:43 (1929). Type species: *Pholidia scoparia* R. Br.

Leaves opposite (at least in Queensland species), indumentum lepidote. Calyx segments rather small, in bud more or less valvate or narrowly imbricate below, usually valvate at anthesis, more or less acuminate or subacute, not enlarged and remaining herbaceous. Corolla cut to about $\frac{1}{4}$, slightly 2-lipped, the upper lip 2-lobed, the lower lip 3-lobed; the lobes all short and rounded or obtuse, subequal. Stamens included. Drupe almost dry, much exceeding the calyx; the endocarp thin.

20. Eremophila dalyana F. Muell. Fragm. 5:22 (1865). Type: Stokes Ra., *Wheeler*; western part of Barcoo R., *Howitt & Murray* (syntypes, not seen).

Pholidia dalyana (F. Muell.) F. Muell. ex Benth. Fl. Aust. 5:10 (1870). Based on *Eremophila dalyana.*

Bontia dalyana (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila dalyana.*

A shrub or small tree attaining 3–7 m in height. *Branchlets* with a close lepidote indumentum, glandular-tuberculate, the tubercles scattered or in four longitudinal rows; the ultimate ones drying somewhat yellowish, compressedly 4-angled, ribbed by the decurrent leaf-bases, 0·5–1 mm diam. or rarely more, the internodes mostly 0·3–1 cm long; the older ones usually drab or brownish, rounded, roughened by the persistent leaf-bases, up to 4 mm diam. *Leaves* opposite or here and there subopposite, densely lepiodote, at length more or less glabrous, glaucous or greyish-green, drying somewhat greenish or dark brown, rugulose, channelled above, linear, (2–)3–5(–7) cm long, up to 1·25 mm wide, slightly narrowed into a petiole-like base 1–4 mm long, tipped by an acute recurved point; margins entire; venation not visible. *Flowers* solitary or paired, axillary; pedicels lepidote, curved or slightly sigmoid, compressed and slender at the base, 0·3–0·8 cm long, usually longer than the calyx. *Calyx* divided to near the base into 5 almost equal, at length valvate segments; segments lepidote outside, pubescent on the margin, more or less pubescent within at least towards the apex and with minute glandular hairs interspersed, narrowly deltoid to broadly lanceolate, 2–4 mm long, acute or subacute, not becoming enlarged and remaining herbaceous. *Corolla* pink shading to white, lepidote outside except towards the base, bearded within around the insertion of the stamens and up the tube towards the base of the abaxial lobe, more or less pubescent on the margins and inner surface of the lobes, 1·8–2·5 cm long; tube 1·5–2 cm long, more or less cylindric or slightly swollen at the base for 3–6 mm then contracted, campanulate in the upper portion; lobes 5, subequal, very broadly ovate or oblong, 3–5 mm long and broad, obtuse or rounded, the abaxial one very slightly larger than the remainder. *Stamens* included; filaments bearded at the base. *Ovary* densely villous or somewhat sericeous, narrowly ovoid, *ca* 4 mm long, tapering gradually into the style, 2-celled with 2–4 ovules in each cell. *Drupe* with the indumentum of the ovary, subfusiform, 8–10 mm long, *ca* 2 mm wide, broadest much below the middle, 4-angled, almost dry, the endocarp thin, imperfectly 4-celled with 1–2 seeds in each cell. *Seeds* pale brownish, whitish within, narrowly oblong, *ca* 2–2·5 mm long.

GREGORY SOUTH DISTRICT: near Wilson R., Sep 1923, *MacGillivray* 933; Keeroongooloo Station, *ca* 26° 20′ S, 142° 20′ E, Jul 1936, *Blake* 12026. WARREGO DISTRICT: between Quilpie and Eromanga, May 1928, *C. T. White*.

The species also occurs in New South Wales, South Australia, Northern Territory and Western Australia.

Neither of the specimens cited by Mueller with the original description was located in the Melbourne herbarium. In fact the only specimens in the *E. dalyana* bundle were two sheets from Western Australia which proved to be *E. pantonii* F. Muell. However, Mueller's description and plate seem adequate to characterize the species.

Section **Platycalyx** Benth. Fl. Aust. 5:16 (1870). Type species: *Eremophila macdonnellii* F. Muell.

Leaves alternate. Indumentum of various types of hairs. Calyx campanulate, divided to about the middle into 5 more or less acute lobes, becoming enlarged and at length splitting irregularly lengthwise, remaining more or less herbaceous. Corolla cut $\frac{1}{3}$–$\frac{3}{8}$, the upper lip 2-lobed, the lower lip 3-lobed; lobes subequal except for the adaxial pair which are united for the greater part of their length. Stamens included. Drupe succulent, exceeding the calyx.

21. Eremophila macdonnellii F. Muell. Rep. Babb. Exped. 18 (1858). Type: Lake Gregory, South Australia, *Babbage* (holotype, loc. ?).

Bontia macdonnellii (F. Muell.) O. Kuntze, Rev. Gen. Pl. 2:501 (1891). Based on *Eremophila macdonnellii.*

Pholidia macdonnellii (F. Muell.) Baill. ex Wettst. in Engl. & Prantl, Naturl. Pflanzenfam. 4(3b):359 (1895). Based on *Eremophila macdonnellii.*

Pholidia bickii F. M. Bail. Qd Ag. J. 25:287, 289 (1910). Type: Georgina R., Sep–Oct 1910, *Bick* 19 (lectotype, BRI).

A small intricately branched shrub, *ca* 0·5 m high. *Branchlets* clothed with an indumentum consisting mainly of stellate hairs with a few long simple ones, and some minute glandular hairs; the ultimate ones slightly ribbed by the decurrent leaf-bases, up to 1·5 mm diam., moderately to densely leafy, internodes 0·5–4 mm long; the older ones brownish, rounded, up to 5 mm diam. *Leaves* alternate, clothed with an indumentum similar to though sparser than that on the branchlets, the long simple hairs sometimes only on the lower margins, greyish-green, drying greenish or brownish, flat or with the margins recurved in the lower portion, oblong or lanceolate, (0·4–)0·8–1·5(–2·2) cm long, (1–)1·5–3(–4) mm wide, the base rather broad, the apex subacute or obtuse, margin entire; nervature obscure or the midrib finely channelled above and elevated beneath. *Flowers* solitary, axillary; pedicels with the indumentum of the branchlets, more or less spreading, rather stout to moderately slender when elongated, 0·7–2 cm long, about as long as or longer than the calyx. *Calyx* 5-lobed above the middle, more or less sparsely stellate-pubescent outside and with a few long simple hairs at least towards the base, stellate-pubescent within on the lobes, more or less glandular-puberulous or glabrous within the tube, 0·7–1·8 cm long, somewhat enlarged under the fruit, remaining herbaceous or sometimes becoming almost scarious, rather prominently nerved; lobes more or less deltoid, 3–7 mm long, acuminate, the margins often slightly recurved, subequal or the abaxial one slightly longer. *Corolla* deep blue to purplish, glabrous outside, bearded inside below the two adaxial lobes down to about the middle of the tube, and bearded within the tube from below the lower lip to the insertion of the stamens, 2–3 cm long; tube 1·3–1·8 cm long, cylindrical at the base for 2–4 mm, campanulate above; lobes 5, unequal, the upper pair rounded at the apex, the free portions *ca* 2–3 mm long, rather deeply separated from the 3 lobes comprising the lower lip which are subequal, more or less obovate-oblong, 7–9 mm long, 5–7 mm wide, obtuse or rounded, the abaxial lobe slightly broader than the lateral ones. *Stamens* included; filaments pubescent. *Ovary* glandular-puberulous and with a few simple hairs towards the apex, ovoid, *ca* 4 mm long, 2-celled with 2–3 pairs of ovules in each cell; style pubescent, 0·9–1·4 cm long. *Drupe* glandular-puberulous and very sparsely pubescent, at length subglabrous, broadly ovoid or ellipsoid, *ca* 1·3 cm long, succulent, exceeding the calyx, 4-celled with 2–3 seeds in each cell. *Seeds* pale, *ca* 3·5 mm long.

GREGORY NORTH DISTRICT: Mulligan R., in 1885, *Cornish* (MEL); Diamantina R., Mar 1892, *T. L. Bancroft;* Georgina R., Sep-Oct 1910, *Bick* 18, 19, 20; Glengyle Station, *ca* 130 km N of Birdsville, Jan 1937, *Everist & L. S. Smith* 104. GREGORY SOUTH DISTRICT: Birdsville, Jul 1936, *Blake* 12257.

The species also occurs in New South Wales, South Australia and the Northern Territory.

The specimens cited above show a good deal of variation as to shape and size of the leaves, closeness and density of the indumentum, length of the pedicels, texture of the calyx, and degree of development and occurrence of the long simple hairs in the indumentum. *Dittrich* 22 (MEL) from south of Charlotte Waters is an extreme so far as length and density of the indumentum and breadth of the leaves is concerned. *Winnecke* 23 (MEL) from Central Australia has a similar indumentum to *Blake* 12257 but differs from the latter in having longer leaves, although the width is about the same in both. *Pholidia bickii* is a form with smaller leaves, sparser stellate indumentum, and poorer development of the long spreading simple hairs. In about 25 specimens examined, most intermediate forms are shown. At least two varieties (var. *gracilis* J. M. Black and var. *glabriuscula* J. M. Black) occur in South Australia and the Northern Territory, but these have not yet been found in Queensland. A specimen in MEL from the type locality (i.e. Lake Gregory) without collector's name or date of collection, may well be a piece of the type collected by Babbage. It has narrower leaves than is usual for the species but similar in shape and size to those on *Winnecke* 23, but the indumentum is more strongly developed and rather longer and denser than on that specimen.

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CONTRIBUTIONS
FROM THE
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Papers are numbered consecutively, paged independently and issued at irregular intervals. Those previously published are

No. 1. A Revision of *Melaleuca leucadendron* and its Allies (Myrtaceae).
By S. T. Blake. Published 27th May, 1968.

No. 2. *Podolepis monticola,* a New Species of Compositae from Queensland.
By R. J. F. Henderson. Published 9th September, 1969.

No. 3. A Cytological Study of *Lantana montevidensis* (Spreng.) Briq. in Queensland.
By R. J. F. Henderson. Published 9th September, 1969.

No. 4. Notes on *Acacia,* chiefly from Queensland, III.
By L. Pedley. Published 9th September, 1969.

No. 5. Intermediates between *Eucalyptus populnea* F. Muell. and *E. brownii* Maid. & Cambage.
By L. Pedley. Published 9th September, 1969.

No. 6. New Species of and Notes on Queensland Plants. V.
By L. S. Smith. Published 9th September, 1969.

No. 7. A Revision of *Carpobrotus* and *Sarcozona* in Australia, Genera Allied to *Mesembryanthemum* (Aizoaceae).
By S. T. Blake. Published 9th September, 1969.

No. 8. Studies in Cyperaceae.
By S. T. Blake. Published 9th September, 1969.

No. 9. A Revision of *Plectranthus* (Labiatae) in Australasia.
By S. T. Blake. Published 23rd April, 1971.

No. 10. *Trachymene cyanantha,* a new Species of Umbelliferae from Queensland.
By D. E. Boyland. Published 4th September, 1972.

No. 11. A Revision of *Acacia lycopodiifolia* A. Cunn. ex Hook. and its Allies.
By L. Pedley. Published 4th September, 1972.

No. 12. *Idiospermum* (Idiospermaceae), a new Genus and Family for *Calycanthus australiensis.*
By S. T. Blake. Published 4th September, 1972.

No. 13. *Neurachne* and its Allies (Gramineae).
By S. T. Blake. Published 4th September, 1972.

No. 14. *Plinthanthesis* and *Danthonia* and a Review of the Australian Species of *Leptochloa* (Gramineae).
By S. T. Blake. Published 4th September, 1972.

No. 15. Notes on *Acacia,* chiefly from Queensland, IV.
By L. Pedley. Published 18th March, 1974.

No. 16. *Solanum nigrum L.* (Solanaceae) and Related Species in Australia.
By R. J. F. Henderson. Published 2nd September, 1974.

No. 17. Revision of the genera *Cymbopogon and Schizachyrium* (Gramineae) in Australia.
By S. T. Blake. Published 2nd September, 1974.

No. 18. Revision of the extra-Australian species of *Acacia* subg. *Heterophyllum.*
By L. Pedley. Published 26th March, 1975.

Now published.

No. 19. The Genus *Eremophila* (Myoporaceae) in Queensland with notes on the Genus *Myoporum.*
By L. S. Smith.

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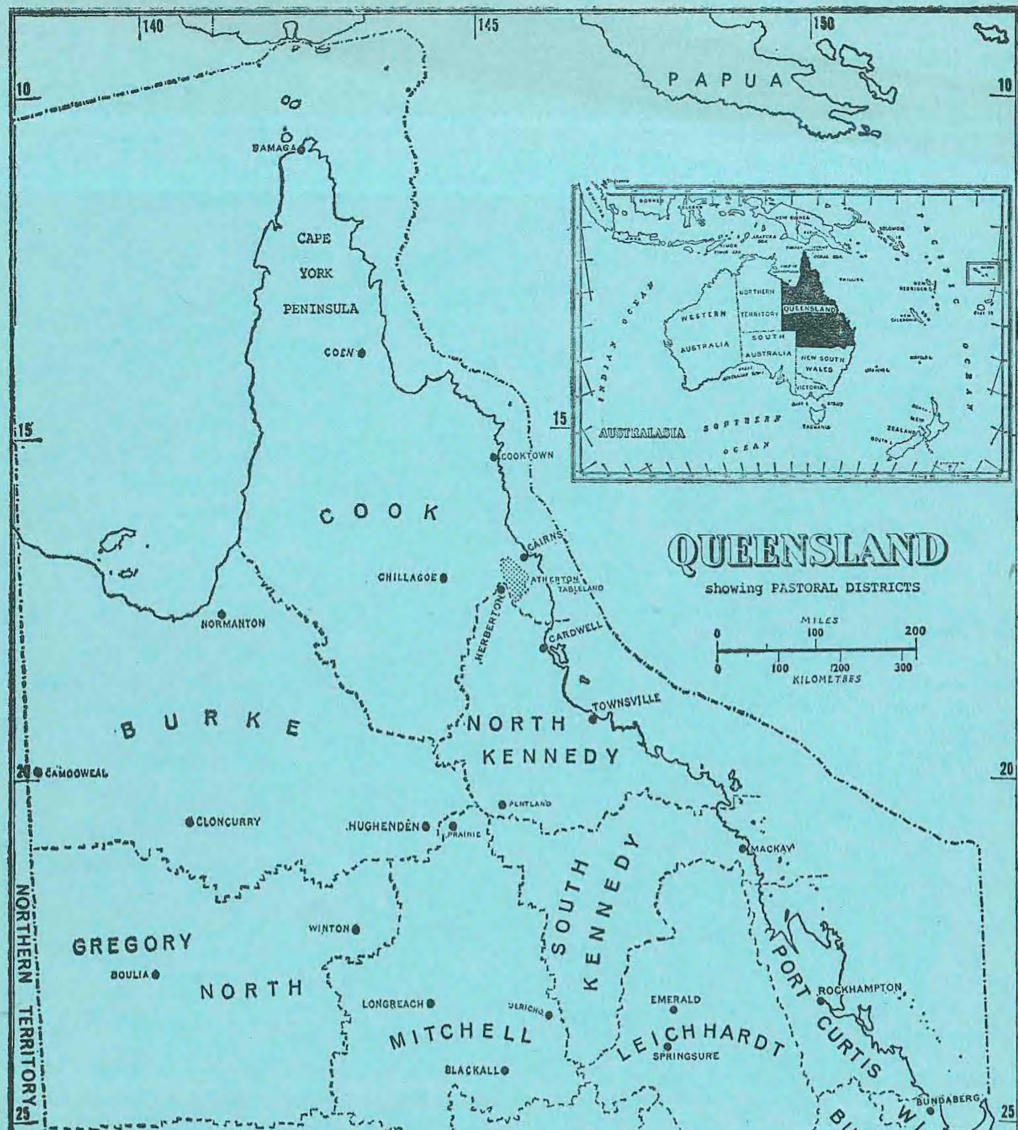

In the citation of specimens from Queensland, the localities are grouped according to the Pastoral Districts shown above. The boundaries of these Districts mostly follow watersheds except for those between North Kennedy District and South Kennedy District and between Gregory North District and Gregory South District.

Compiled from maps issued by the Survey Office, Department of Lands, Brisbane; based on State Map 4a.

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